# HITACHI
# SERVICE MANUAL

YK | No.648EF 1282

# TRK-3D88

[H, HC, E, E(BS), W, W(UN), W(AU)]

for E
TN-21ZSW-731 chassis
except E
TN-521ZHW-286Z chassis

TRK-3D88 is different from TRK-3D80, which has been in the market, mainly by the color of the front panel and the chassis of the cassette.
This service manual specifies only the items which are different from TRK-3D80, therefore for the other items, please refer to the service manual TRK-3D80 (No.594EF).

+ 1214

TRK-3D88 est différent avec TRK-3D80 qui est en vente principalement par la couleur du panneau avant et le châssis du chargeur.
Ce manuel du service montre seulement les sujets qui sont différents avec TRK-3D80. Donc, prière voir le manuel du service pour TRK-3D80 (No.594EF) concernant des autres sujets.

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**SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.**

## HIGH PERFORMANCE PORTABLE CREATIVE SOUND SYSTEM


**August 1990** **YOKOHAMA WORKS**

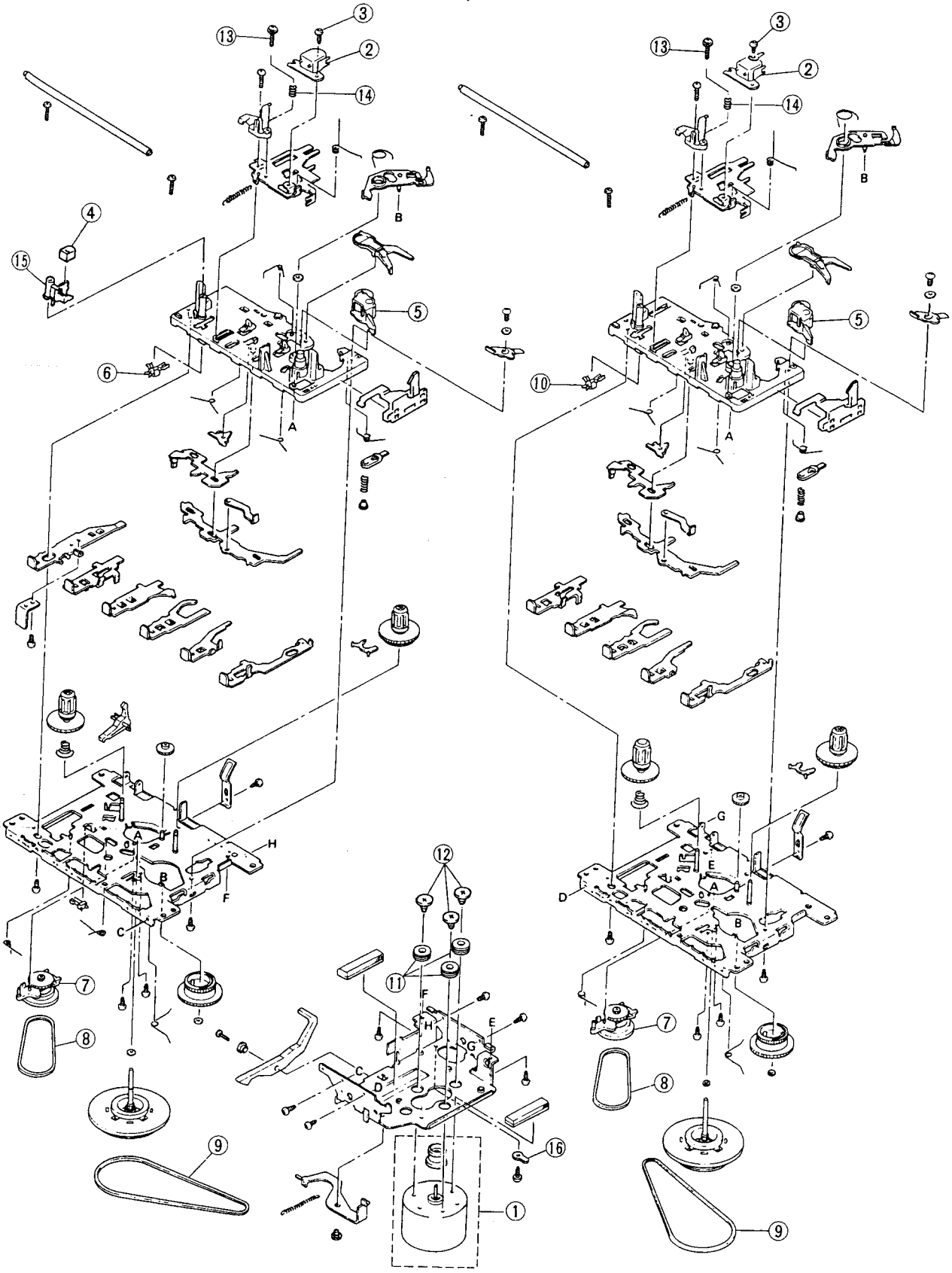

1282

# EXPLODED VIEW (Cassette Chassis TN-21ZSW-731)

# VUE EXPLOSEE (Châssis de Cassette TN-21ZSW-731)

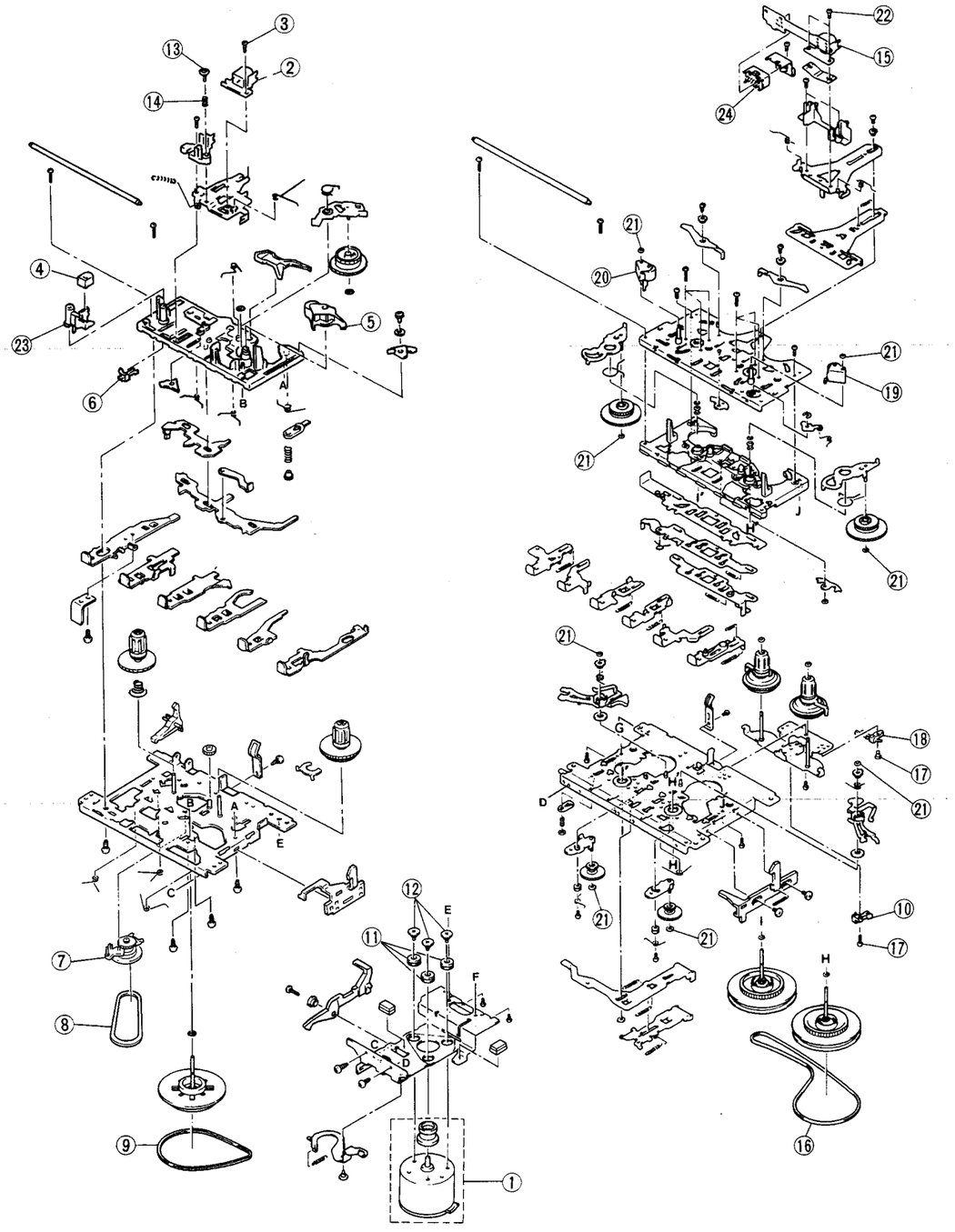
[for E]
[pour E]

- Nos. are reference Nos. of parts list.
- Ces numéros correspondent à la liste des pièces



***(Cassette Chassis TN-521ZHW-286Z)*** ***(Châssis de Cassette TN-521ZHW-286Z)*** ***[except E] [sauf E]***

- Nos. are reference Nos. of parts list.
- Ces numéros correspondent à la liste des pièces






# *REPLACEMENT PARTS LIST • TABLEAU DES PIÈCES*

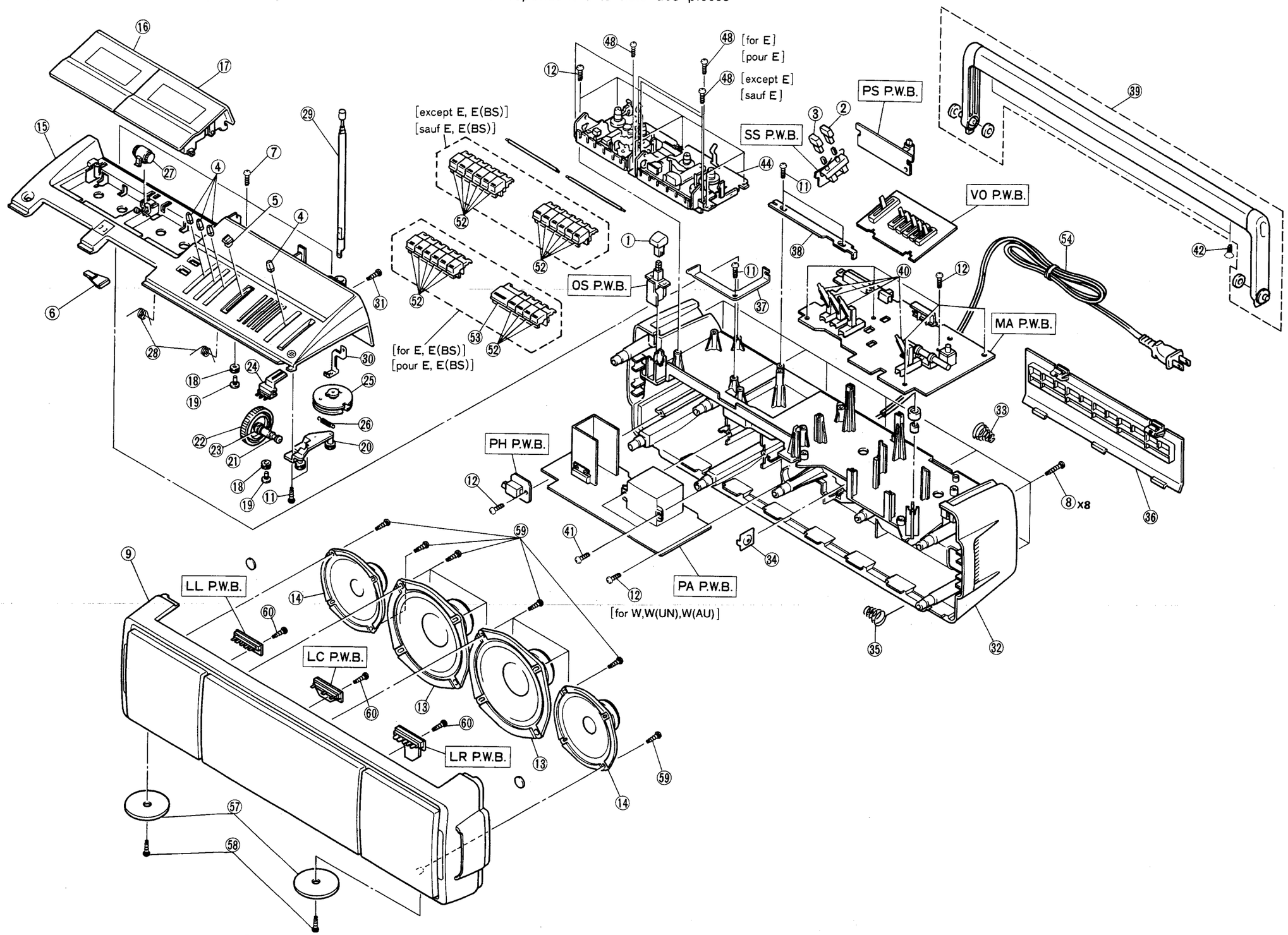
**PRODUCT SAFETY NOTE**: Components marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully, the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

| SYMBOL NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| | | CABINET CHASSIS; |
| 1 | 3808871 | P Button |
| 2 | 3808881 | SD Button |
| 3 | 3808882 | Button (SD) |
| 4 | 3808891 | SW knob |
| 5 | 3808901 | VOL knob |
| 6 | 3808911 | REV piece [except E] |
| 7 | 4577816 | BT screw, (3 × 20) |
| 8 | 4577816 | BT Screw, (3 × 20) |
| 9 | 4892761 | Front case assy |
| 11 | 4578972 | BT flange screw, (3 × 10) |
| 12 | 86994101 | BT bind head screw, (3 × 10) |
| 13 | 2404122 | 16 Speaker |
| 14 | 2404111 | 12 Speaker |
| 15 | 3401211 | Top panel assy [for E] |
| | 3401212 | Top panel assy [for E(BS)] |
| | 3401213 | Top panel assy [for W] |
| | 3401214 | Top panel assy [for W(UN)] |
| | 3401215 | Top panel assy [for W(AU)] |
| | 3401216 | Top panel assy [for H] |
| | 3401217 | Top panel assy [for HC] |
| 16 | 4005884 | Cassette lid assy |
| 17 | 4005885 | Cassette lid assy [for E] |
| | 4005886 | Cassette lid assy [except E] |
| 18 | 3934271 | Roller |
| 19 | 4577661 | Roller pin |
| 20 | 4005901 | TUN holder assy |
| 21 | 3808971 | Tuning shaft |
| 22 | 3295294 | TUN knob |
| 23 | 3340312 | Spring washer |
| 24 | 3977801 | Pointer |
| 25 | 3348703 | Pulley |
| 26 | 3340321 | Spring M |
| 27 | 3809101 | Damper W |
| 28 | 3368932 | EJ spring |
| 29 | 2757901 | Rod antenna |
| 30 | 4469401 | Rod antenna bracket |
| 31 | 4567433 | DT screw (3 × 10) |
| 32 | 3401171 | Rear case assy [for E] |
| | 3401172 | Rear case assy [for E(BS)] |
| | 3401173 | Rear case assy [for W] |
| | 3401174 | Rear case assy [for W(UN)] |
| | 3401175 | Rear case assy [for W(AU)] |
| | 3401176 | Rear case assy [for H] |
| | 3401177 | Rear case assy [for HC] |
| 33 | 3369849 | Spring |
| 34 | 4436666 | Terminal |
| 35 | 3369782 | BAT spring |
| 36 | 3973524 | Battery lid assy |
| 37 | 4476681 | REC lever (A) |
| 38 | 4476691 | REC lever (B) |
| 39 | 4006732 | Handle assy |
| 40 | 3809011 | SW arm |
| 41 | 4578976 | BT flange screw, (3 × 20) |
| 42 | 4577832 | BT flat head screw (3 × 10) |
| 44 | 3374571 | TN-21ZSW-731 Cassette mecha [for E] |
| | 3374581 | TN-521ZHW-286Z Cassette mecha [except E] |

| SYMBOL NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| 48 | 4856328 | M2 × 9 screw |
| 52 | 3809021 | Cassette button |
| 53 | 3809031 | Cassette button (PL) [for E] |
| ⚠ 54 | 2702945 | Power supply cord [for HC] |
| ⚠ | 2706241 | Power supply cord [for H] |
| ⚠ | 2706251 | Power supply cord [for W(AU)] |
| ⚠ | 2706264 | Power supply cord [for W,W(UN)] |
| ⚠ | 2707709 | Power supply cord [for E] |
| ⚠ | 2717906 | Power supply cord [for E(BS)] |
| 57 | 3880671 | Leg support L&R |
| 58 | 4578971 | BT bind head screw (3 × 12) (with washer) |
| 59 | 4578973 | BT flange screw, (3 × 8) |
| 60 | 86994081 | BT bind head screw (3 × 8) |
| | | CASSETTE CHASSIS (TN-21ZSW-731) [for E] |
| 1 | 3375051 | Motor assy |
| 2 | 8513383 | Head |
| 3 | 8513430 | + Bind screw M2 × 3 |
| 4 | 4848051 | Erase head |
| 5 | 8513421 | Pinch roller arm assy |
| 6 | 4856331 | Leaf switch MSW-1541T |
| 7 | 8513423 | RF clutch assy |
| 8 | 8513379 | RF belt |
| 9 | 3375014 | Main belt |
| 10 | 2636351 | Leaf switch |
| 11 | 48191742 | Motor rubber |
| 12 | 48191732 | M collar screw |
| 13 | 48196002 | Azimuth screw |
| 14 | 48190172 | Spring |
| 15 | 3374499 | MG arm |
| 16 | 8513633 | Lug plate 3B |
| | | CASSETTE CHASSIS (TN-521ZHW-286Z) [except E] |
| 1 | 3375061 | Motor assy |
| 2 | 8513383 | Head |
| 3 | 8513430 | +Bind screw M2 × 3 |
| 4 | 3375002 | E head |
| 5 | 8513421 | Pinch roller arm assy |
| 6 | 4856331 | Leaf switch |
| 7 | 8513423 | RF clutch assy |
| 8 | 8513424 | RF belt |
| 9 | 8501746 | Belt |
| 10 | 8501749 | Leaf switch |
| 11 | 4842404 | Motor rubber |
| 12 | 8511951 | Motor collar screw |
| 13 | 48196002 | Azimuth screw |
| 14 | 48190172 | Spring |
| 15 | 8513372 | P head |
| 16 | 4856283 | Main belt |
| 17 | 4856329 | M2 × 5 screw |
| 18 | 8501741 | Leaf switch |
| 19 | 4853699 | Pinch roller (F) assy |
| 20 | 4853690 | Pinch roller (R) assy |
| 21 | 4842444 | Washer (1.2) |
| 22 | 4853722 | Screw, (2 × 4.5) |
| 23 | 3374499 | MG arm |
| 24 | 4842401 | Slide switch |

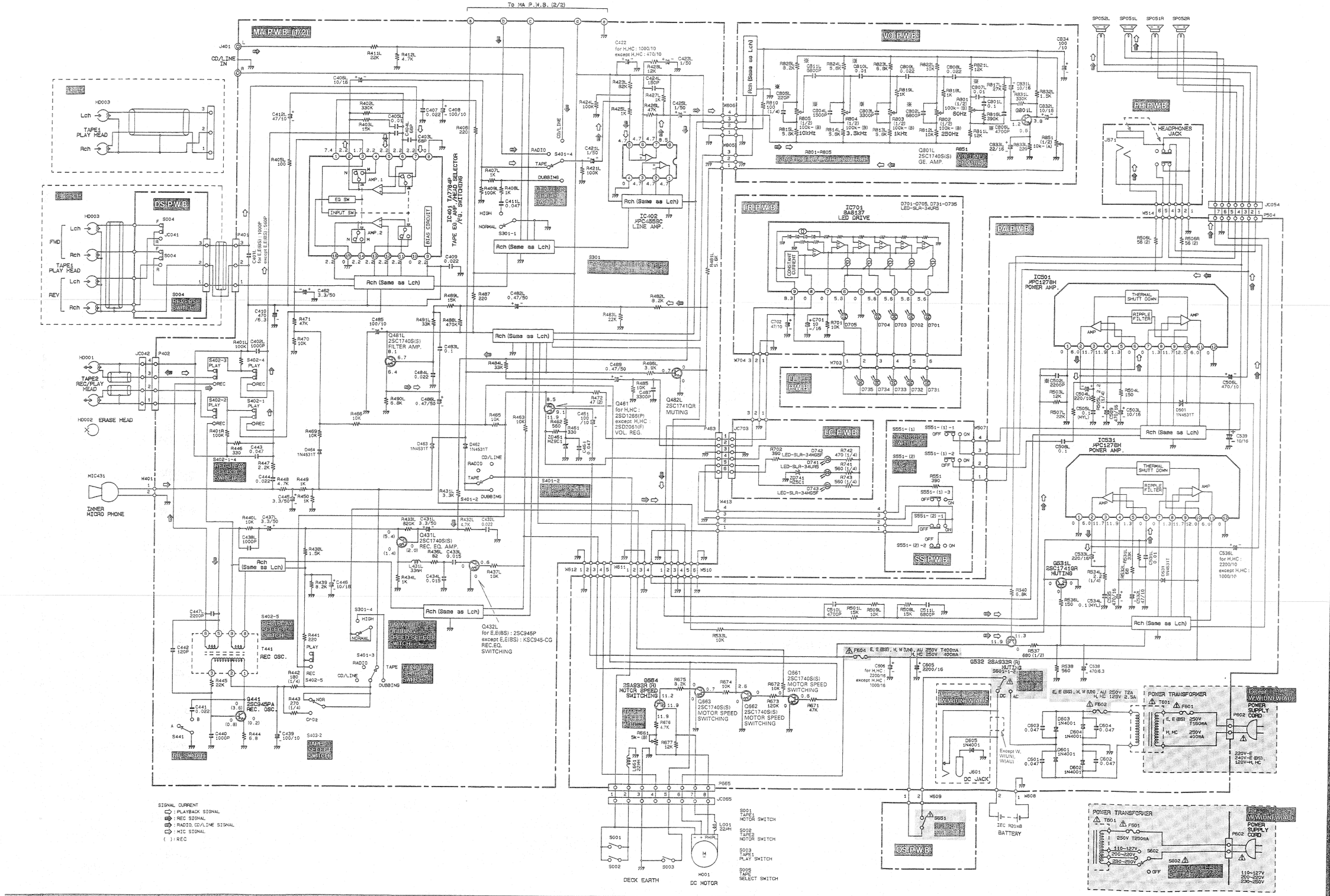
## *EXPLODED VIEW (Cabinet)* *VUE EXPLOSEE (Coffret)*

- Nos. are reference Nos. of parts list.
- Ces numéros correspondent à la liste des pièces



# CIRCUIT DIAGRAM · PLAN DE CIRCUIT

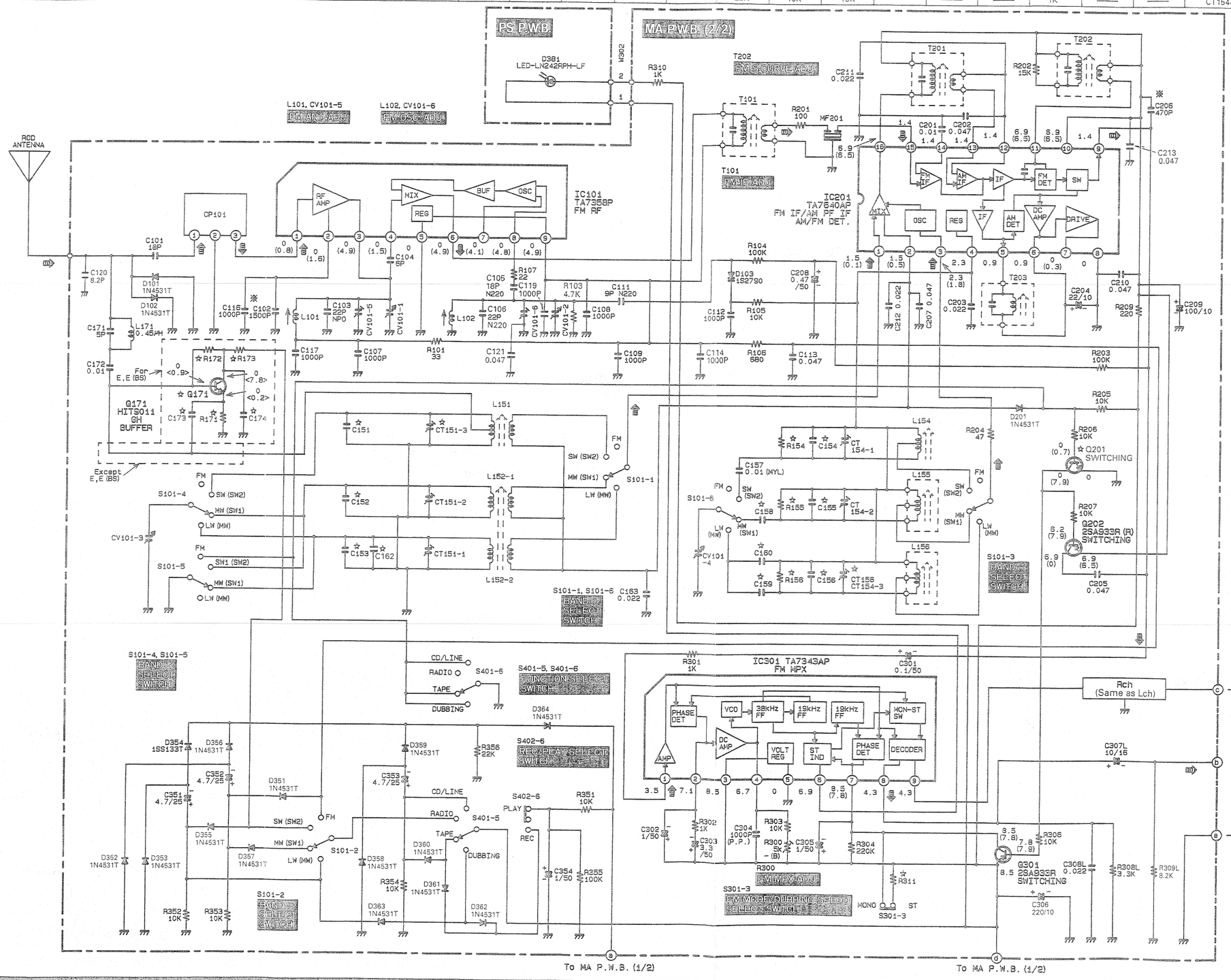
※ : Axial lead cylindrical ceramic capacitor.
※ : Condensateur céramique clindrique à conducteur axial.



# CIRCUIT DIAGRAM · PLAN DE CIRCUIT

※ : Axial lead cylindrical ceramic capacitor.
※ : Condensateur céramique clindrique à conducteur axial.

| ☆No. | C151 | C152 | C153 | C154 | C155 | C156 | C158 | C159 | C160 | C162 | C173 | C174 | R154 | R155 | R156 | R171 | R172 | R173 | R311 | Q171 | CT151-3 | CT154-3, CT156 | Q201 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E,E (BS) | 12P | 10P | 68P | 18P NPO | 15P | —— | 360P (P.P.) | 180P (STY) | 120P | 10P | 0.01 | 0.022 | 18K | 18K | —— | 100 | 330K | 390 | Jumper | Use | Use | CT156 | 2SC945P |
| W,W(UN),W(AU) | —— | 5P | 10P | 15P N750 | 8P | 12P | 1500P (P.P.) | 360P (P.P.) | —— | —— | —— | —— | 22K | 15K | 15K | —— | —— | —— | 1K | —— | —— | CT154-3 | KSC945-CG |
| H,HC | —— | 6P | 6P | 15P N750 | 8P | 8P | 1500P(P.P.) | 360P(P.P.) | —— | —— | —— | —— | 22K | 15K | 15K | —— | —— | —— | 1K | —— | —— | CT154-3 | KSC945-CG |




SIGNAL CURRENT
⇒ : AUDIO SIGNAL
S101 BAND SELECT SWITCH
ForE, E (BS)
FM-SW-MW-LW
ExceptE, E (BS)
FM-SW2-SW1-MW

( ): FM
< >: SW forE, E (BS)

For E, E (BS)

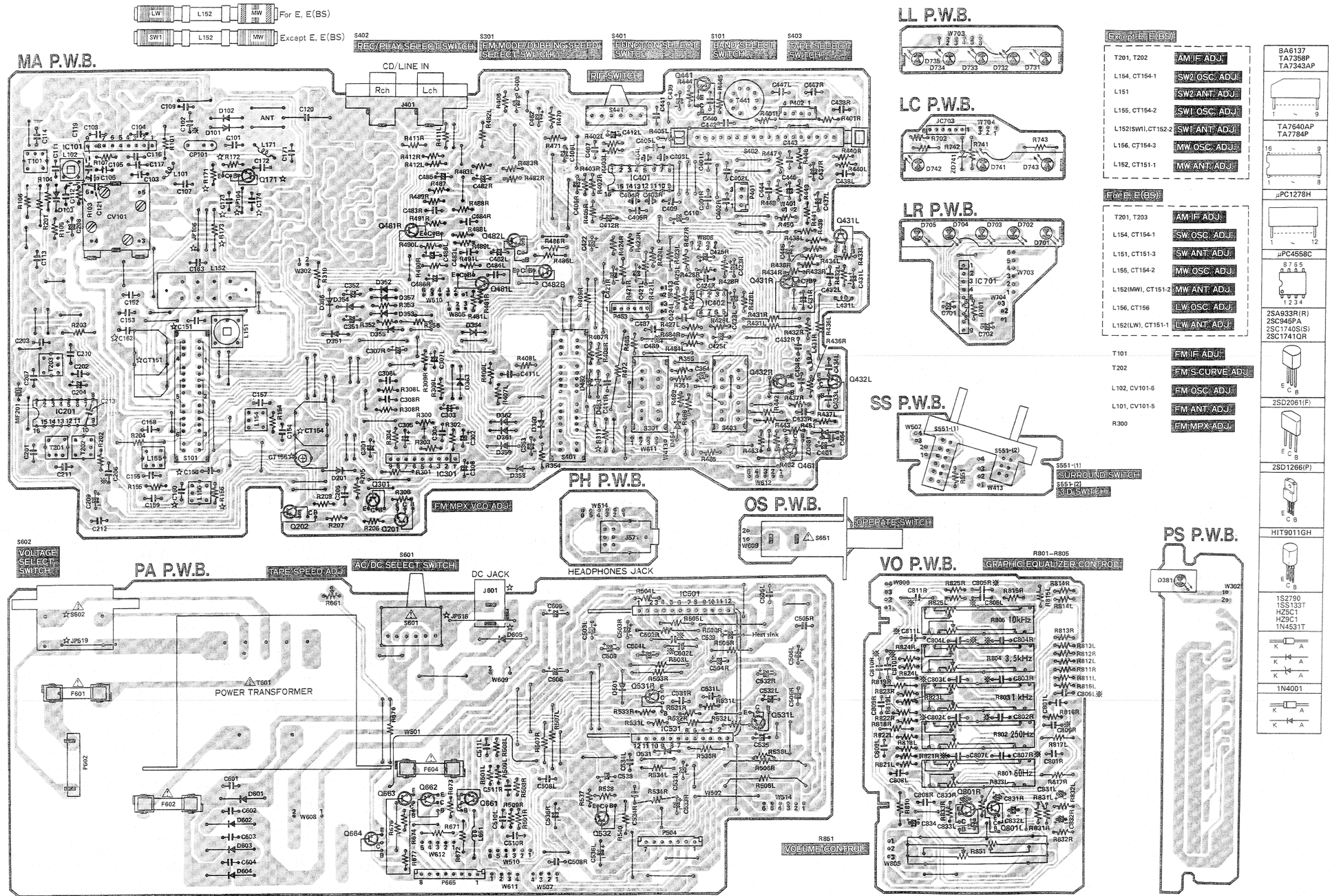
T201, T203 AM I.F. ADJ.
L154, CT154-1 SW OSC. ADJ.
L151, CT151-3 SW ANT. ADJ.
L155, CT154-2 MW OSC. ADJ.
L152 (MW), CT151-2 MW ANT. ADJ.
L156, CT156 LW OSC. ADJ.
L152 (LW), CT151-1 LW ANT. ADJ.

Except E, E (BS)

T201, T203 AM I.F. ADJ.
L154, CT154-1 SW 2 OSC. ADJ.
L151 SW 2 ANT. ADJ.
L155, CT154-2 SW 1 OSC. ADJ.
L152 (SW1), CT152-2 SW 1 ANT. ADJ.
L156, CT154-3 MW OSC. ADJ.
L152 (MW), CT151-1 MW ANT. ADJ.

# PRINTED WIRING BOARD · PLAN DE BASE

※ : Axial lead cylindrical ceramic capacitor.
※ : Condensateur céramique clindrique à conducteur axial.




| ☆ SYMBOL | E, E(BS) | H, HC | W, W(UN), W(AU) |
|---|---|---|---|
| CT151 | | | |
| CT154 | | | |
| C151 | USE | — | — |
| C156 | — | USE | USE |
| C160 | USE | — | — |
| C173 | USE | — | — |
| C174 | USE | — | — |
| D605 | — | — | USE |
| JP104 | — | USE | USE |
| JP106 | USE | — | — |

| ☆ SYMBOL | E, E(BS) | H, HC | W, W(UN), W(AU) |
|---|---|---|---|
| J601 | — | — | USE |
| Q171 | USE | — | — |
| R156 | — | USE | USE |
| R171 | USE | — | — |
| R172 | USE | — | — |
| R173 | USE | — | — |
| R311 | Jumper | USE | USE |
| S602 | — | — | USE |
| CT156 | USE | — | — |
| JP519 | USE | USE | — |
| JP515 | USE | USE | — |
| C162 | USE | — | — |

| | E | C | B |
|---|---|---|---|
| Q171 | 0 [0.2] | 0 [7.8] | 0 [0.9] |
| Q201 | 0 | 0 (7.9) | 0 (0.7) |
| Q202 | 6.9 (6.5) | 6.9 (0) | 6.2 (7.9) |
| Q301 | 8.5 | 8.5 (7.8) | 7.8 (7.9) |
| Q431LR | 0 (1.4) | 0 (5.4) | 0 (2.0) |
| Q432LR | 0 | 0 | 0.6 |
| Q441 | 0 (0.2) | 0 (3.6) | 0 (0.8) |
| Q461 | 8.5 | 11.9 | 9.1 |
| Q481LR | 6.4 | 8.1 | 6.7 |

| | E | C | B |
|---|---|---|---|
| Q482LR | 0 | 0 | 0.7 |
| Q531LR | 0 | 0 | 0 |
| Q532 | 11.9 | 0 | 11.3 |
| Q651 | 0 | 0 | 0.6 |
| Q652 | 0 | 2.6 | 0 |
| Q663 | 0 | 0 | 0.7 |
| Q664 | 11.9 | 11.4 | 11.2 |
| Q801LR | 0.6 | 3.8 | 1.2 |

( ):FM [ ]:SW for E E(BS)

| Pin No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| IC101 | 0 (0.8) | 0 (1.6) | 0 (4.9) | 0 (1.5) | | 0 (4.9) | 0 (4.1) | 0 (4.8) | 0 (4.9) |
| IC301 | 3.5 | 7.1 | 8.5 | 6.7 | 0 | 6.9 | 8.5 (7.8) | 4.3 | 4.3 |

( ): FM

IC201

| Pin No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Voltage | 1.5 (0.1) | 1.5 (0.5) | 2.3 (1.8) | 2.3 | 0.9 | 0.9 | 0 (0.3) | 0 |
| Pin No. | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Voltage | 1.4 | 6.9 (6.5) | 6.9 (6.5) | 1.4 | 1.4 | 1.4 | 1.4 | 6.9 (6.5) |

IC401

| Pin No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Voltage | 7.4 | 2.2 | 1.7 | 2.2 | 2.2 | 2.2 | 2.2 | 0 |
| Pin No. | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Voltage | 2.2 | 0 | 2.2 | 2.2 | 2.2 | 2.2 | 0 | 2.2 |

IC402

| Pin No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Voltage | 4.7 | 4.7 | 4.7 | 0 | 4.7 | 4.7 | 4.7 | 8.5 |

IC701

| Pin No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Voltage | 5.6 | 5.6 | 5.6 | 5.6 | 0 | 5.6 | 0 | 0 | 8.3 |

IC501, 531

| Pin No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Voltage | 0 | 6.0 | 11.7 | 11.9 | 1.3 | 0 | 0 | 1.3 | 11.7 | 12.0 | 6.0 | 0 |

# REPLACEMENT PARTS LIST • TABLEAU DES PIÈCES

**PRODUCT SAFETY NOTE:** Components marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully, the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

ABBREVIATIONS:
Capacitors ..... CD: Ceramic disk, PF: Polyester film, EL: Electrolytic, PP: Polypropylene, PR: Paper, TA: Tantalum, TM: Trimmer
Resistors ..... CF: Carbon film, CC: Carbon composition, MF: Metal oxide film, VR: Variable resistor, WW: Wire wound, FR: Fuse resistor, MG: Metal glazed
Semiconductor .... TR: Transistor, DI: Diode, ZD: Zener diode, VA: Varistor, TH: Thermistor, IC: IC

| SYMBOL NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| | | CAPACITORS; |
| C101 | 02086661 | CD 18FP ±5% 50V |
| C102 | 0890036 | CD 1500PF ±20% 16V |
| C103 | 02464482 | CD 22PF ±5% 50V |
| C104 | 02486462 | CD 6PF ±0.25PF 50V |
| C105 | 0248036 | CD 18PF ±5% 50V |
| C106 | 0248038 | CD 22PF ±5% 50V |
| C107 | 0890087 | CD 1000PF ±10% 50V |
| C108 | 0890087 | CD 1000PF ±10% 50V |
| C109 | 0890087 | CD 1000PF ±10% 50V |
| C111 | 0248019 | CD 9PF ±0.5PF 50V |
| C112 | 0890087 | CD 1000PF ±10% 50V |
| C113 | 0209175 | CD 0.047µF +80 -20% 50V |
| C114 | 0890087 | CD 1000PF ±10% 50V |
| C116 | 0890087 | CD 1000PF ±10% 50V |
| C117 | 0890087 | CD 1000PF ±10% 50V |
| C119 | 0890087 | CD 1000PF ±10% 50V |
| C120 | 0890007 | CD 8.2PF ±10% 50V |
| C121 | 0890103 | CD 0.047µF +80 -20% 12V |
| C151 | 0208662 | CD 12PF ±5% 50V [for E,E(BS)] |
| C152 | 0208646 | CD 6PF ±0.5PF 50V [except E,E(BS)] |
| C152 | 02086501 | CD 10PF ±0.5PF 50V [for E,E(BS)] |
| C153 | 0208646 | CD 6PF ±0.5PF 50V [for H,HC] |
| C153 | 02086501 | CD 10PF ±0.5PF 50V [for W,W(UN),W(AU)] |
| C153 | 02086802 | CD 68PF ±5% 50V [for E,E(BS)] |
| C154 | 02464462 | CD 18PF ±5% 50V [for E,E(BS)] |
| C154 | 02484942 | CD 15PF ±5% 50V [except E,E(BS)] |
| C155 | 02086482 | CD 8PF ±0.5PF 50V [except E,E(BS)] |
| C155 | 0208664 | CD 15PF ±5% 50V [for E,E(BS)] |
| C156 | 02086482 | CD 8PF ±0.5PF 50V [for H,HC] |
| C156 | 0208662 | CD 12PF ±5% 50V [for W,W(UN),W(AU)] |
| C157 | 0880009 | MF 0.01µF ±10% 50V |
| C158 | 0268321 | PP 360PF ±5% 100V [for E,E(BS)] |
| C158 | 0268442 | PP 1500PF ±5% 100V [except E,E(BS)] |
| C159 | 0268321 | PP 360PF ±5% 100V [except E,E(BS)] |
| C159 | 1221391 | ST 180PF ±5% 50V [for E,E(BS)] |
| C160 | 02086862 | CD 120PF ±5% 50V [for E,E(BS)] |
| C162 | 02086501 | CD 10PF ±0.5PF 50V [for E,E(BS)] |
| C163 | 0890102 | CD 0.022µF +80 -20% 50V |
| C171 | 0208635 | CD 5PF ±0.25PF 50V |
| C172 | 0890101 | CD 0.01µF ±20% 16V |
| C173 | 0890101 | CD 0.01µF ±20% 16V [for E,E(BS)] |
| C174 | 0890102 | CD 0.022µF +80 -20% 50V [for E,E(BS)] |
| C201 | 0890101 | CD 0.01µF ±20% 16V |
| C202 | 0890103 | CD 0.047µF +80 -20% 12V |
| C203 | 0890102 | CD 0.022µF +80 -20% 50V |
| C204 | 0800022 | EL 22µF 10V |
| C205 | 0890103 | CD 0.047µF +80 -20% 12V |
| C206 | 0890031 | CD 470PF ±10% 50V |
| C207 | 0890103 | CD 0.047µF +80 -20% 12V |
| C208 | 0800001 | EL 0.47µF 50V |
| C209 | 0800048 | EL 100µF 10V |
| C210 | 0890103 | CD 0.047µF +80 -20% 12V |
| C211 | 0890102 | CD 0.022µF +80 -20% 50V |
| C212 | 0890102 | CD 0.022µF +80 -20% 50V |
| C213 | 0890103 | CD 0.047µF +80 -20% 12V |
| C301 | 0253940 | EL 0.1µF 50V |
| C302 | 0800003 | EL 1µF 50V |
| C303 | 0800007 | EL 3.3µF 50V |
| C304 | 02684462 | PP 1000PF ±5% 100V |
| C305 | 0800003 | EL 1µF 50V |
| C306 | 0800057 | EL 220µF 10V |
| C307L,R | 0800015 | EL 10µF 16V |
| C308L,R | 0890102 | CD 0.022µF +80 -20% 50V |
| C351 | 0800009 | EL 4.7µF 25V |
| C352 | 0800009 | EL 4.7µF 25V |
| C353 | 0800009 | EL 4.7µF 25V |
| C354 | 0800003 | EL 1µF 50V |



| SYMBOL NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| C401L,R | 0890084 | CD 560PF ±10% 50V [except E,E(BS)] |
| C401L,R | 0890087 | CD 1000PF ±10% 50V [for E,E(BS)] |
| C402L,R | 0890087 | CD 1000PF ±10% 50V |
| C403L,R | 02486802 | CD 68PF ±5% 50V |
| C404L,R | 02486802 | CD 68PF ±5% 50V |
| C405L,R | 0890101 | CD 0.01µF ±20% 16V |
| C406L,R | 0800015 | EL 10µF 16V |
| C407 | 0890102 | CD 0.022µF +80 -20% 50V |
| C408 | 0800048 | EL 100µF 10V |
| C409 | 0890102 | CD 0.022µF +80 -20% 50V |
| C410 | 0800072 | EL 470µF 6.3V |
| C411L,R | 0890103 | CD 0.047µF +80 -20% 12V |
| C412L,R | 0800039 | EL 47µF 10V |
| C421L,R | 0800003 | EL 1µF 50V |
| C422 | 0800073 | EL 470µF 10V [except H,HC] |
| C422 | 0800081 | EL 1000µF 10V [for H,HC] |
| C423L,R | 0800003 | EL 1µF 50V |
| C424L | 02486882 | CD 150PF ±5% 50V |
| C424R | 02086681 | CD 22PF ±5% 50V |
| C425L,R | 0800003 | EL 1µF 50V |
| C431L,R | 0800007 | EL 3.3µF 50V |
| C432L,R | 0890102 | CD 0.022µF +80 -20% 50V |
| C433L,R | 0240214 | CD 0.015µF ±10% 25V |
| C434L,R | 0240214 | CD 0.015µF ±10% 25V |
| C437L,R | 0800007 | EL 3.3µF 50V |
| C438L,R | 0890087 | CD 1000PF ±10% 50V |
| C439 | 0800048 | EL 100µF 10V |
| C440 | 0890087 | CD 1000PF ±10% 50V |
| C441 | 0890102 | CD 0.022µF +80 -20% 50V |
| C442 | 02086862 | CD 120PF ±5% 50V |
| C443 | 0890103 | CD 0.047µF +80 -20% 12V |
| C444 | 0890102 | CD 0.022µF +80 -20% 50V |
| C445 | 0800007 | EL 3.3µF 50V |
| C446 | 0800015 | EL 10µF 16V |
| C447L,R | 0209733 | CD 2200PF ±10% 50V |
| C461 | 0800048 | EL 100µF 10V |
| C462 | 0800007 | EL 3.3µF 50V |
| C464 | 0890103 | CD 0.047µF +80 -20% 12V |
| C482L,R | 0800001 | EL 0.47µF 50V |
| C483L,R | 0240224 | CD 0.1µF ±10% 25V |
| C484L,R | 0890102 | CD 0.022µF +80 -20% 50V |
| C485 | 0800048 | EL 100µF 10V |
| C486L,R | 0800001 | EL 0.47µF 50V |
| C487 | 0890094 | CD 3300PF ±20% 25V |
| C489 | 0800001 | EL 0.47µF 50V |
| C502L,R | 0890037 | CD 2200PF ±20% 16V |
| C503L,R | 0800015 | EL 10µF 16V |
| C504L,R | 0800057 | EL 220µF 10V |
| C505L,R | 0880016 | MF 0.1µF ±10% 50V |
| C506L,R | 0800073 | EL 470µF 10V |
| C508L,R | 0240224 | CD 0.1µF ±10% 25V |
| C509 | 0800074 | EL 470µF 16V |
| C510L,R | 0890096 | CD 4700PF ±20% 25V |
| C511L,R | 0890098 | CD 6800PF ±20% 25V |
| C531L,R | 0890101 | CD 0.01µF ±20% 16V |
| C532L,R | 0800039 | EL 47µF 10V |
| C533L,R | 0800057 | EL 220µF 10V |
| C534L,R | 0880016 | MF 0.1µF ±10% 50V |
| C535 | 0800074 | EL 470µF 16V |
| C536L,R | 0800081 | EL 1000µF 10V [except H,HC] |
| C536L,R | 0800086 | EL 2200µF 10V [for H,HC] |
| C538 | 0800072 | EL 470µF 6.3V |
| C539 | 0800122 | EL 10µF 16V |
| C601 | 0209175 | CD 0.047µF +80 -20% 50V |
| C602 | 0209175 | CD 0.047µF +80 -20% 50V |
| C603 | 0209175 | CD 0.047µF +80 -20% 50V |
| C604 | 0209175 | CD 0.047µF +80 -20% 50V |
| C605 | 0800087 | EL 2200µF 16V |
| C606 | 0800082 | EL 1000µF 16V [except H,HC] |
| C606 | 0800087 | EL 2200µF 16V [for H,HC] |
| C701 | 0800015 | EL 10µF 16V |
| C702 | 0800039 | EL 47µF 10V |
| C801L,R | 0240224 | CD 0.1µF ±10% 25V |
| C802L,R | 0890041 | CD 6800PF ±30% 16V |
| C803L,R | 0890038 | CD 3300PF ±20% 16V |
| C804L,R | 0890036 | CD 1500PF ±20% 16V |
| C805L,R | 0890026 | CD 220PF ±10% 50V |
| C806L,R | 0890039 | CD 4700PF ±30% 16V |
| C807L,R | 0890043 | CD 0.01µF ±20% 16V |
| C808L,R | 0890102 | CD 0.022µF +80 -20% 50V |
| C809L,R | 0890102 | CD 0.022µF +80 -20% 50V |
| C810L,R | 0890043 | CD 0.01µF ±20% 16V |
| C811L,R | 0890041 | CD 6800PF ±30% 16V |
| C831L,R | 0800122 | EL 10µF 16V |
| C832L,R | 0800122 | EL 10µF 16V |
| C833L,R | 0800128 | EL 22µF 16V |
| C834 | 0800144 | EL 100µF 10V |
| | | RESISTORS; |
| R101 | 0700021 | CF 33Ω ±5% 1/16W |
| R103 | 0700049 | CF 4.7KΩ ±5% 1/16W |
| R104 | 0700067 | CF 100KΩ ±5% 1/16W |
| R105 | 0700054 | CF 10KΩ ±5% 1/16W |
| R106 | 0700038 | CF 680Ω ±5% 1/16W |
| R107 | 0700018 | CF 22Ω ±5% 1/16W |
| R154 | 0700057 | CF 18KΩ ±5% 1/16W [for E,E(BS)] |
| R154 | 0700058 | CF 22KΩ ±5% 1/16W [except E,E(BS)] |
| R155 | 0700057 | CF 18KΩ ±5% 1/16W [for E,E(BS)] |

| SYMBOL NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| R155 | 0700056 | CF 15KΩ ±5% 1/16W [except E,E(BS)] |
| R156 | 0700056 | CF 15KΩ ±5% 1/16W [except E,E(BS)] |
| R171 | 0700027 | CF 100Ω ±5% 1/16W [for E,E(BS)] |
| R172 | 0700074 | CF 330KΩ ±5% 1/16W [for E,E(BS)] |
| R173 | 0700035 | CF 390Ω ±5% 1/16W [for E,E(BS)] |
| R201 | 0700027 | CF 100Ω ±5% 1/16W |
| R202 | 0700056 | CF 15KΩ ±5% 1/16W |
| R203 | 0700067 | CF 100KΩ ±5% 1/16W |
| R204 | 0700023 | CF 47Ω ±5% 1/16W |
| R205 | 0700054 | CF 10KΩ ±5% 1/16W |
| R206 | 0700054 | CF 10KΩ ±5% 1/16W |
| R207 | 0700054 | CF 10KΩ ±5% 1/16W |
| R209 | 0700032 | CF 220Ω ±5% 1/16W |
| R301 | 0700041 | CF 1KΩ ±5% 1/16W |
| R302 | 0700041 | CF 1KΩ ±5% 1/16W |
| R303 | 0700054 | CF 10KΩ ±5% 1/16W |
| R304 | 0700072 | CF 220KΩ ±5% 1/16W |
| R306 | 0700054 | CF 10KΩ ±5% 1/16W |
| R308L,R | 0700047 | CF 3.3KΩ ±5% 1/16W |
| R309L,R | 0700053 | CF 8.2KΩ ±5% 1/16W |
| R310 | 0700041 | CF 1KΩ ±5% 1/16W |
| R311 | 0700041 | CF 1KΩ ±5% 1/16W [except E,E(BS)] |
| R351 | 0700054 | CF 10KΩ ±5% 1/16W |
| R352 | 0700054 | CF 10KΩ ±5% 1/16W |
| R353 | 0700054 | CF 10KΩ ±5% 1/16W |
| R354 | 0700054 | CF 10KΩ ±5% 1/16W |
| R355 | 0700067 | CF 100KΩ ±5% 1/16W |
| R356 | 0700058 | CF 22KΩ ±5% 1/16W |
| R401L,R | 0700067 | CF 100KΩ ±5% 1/16W |
| R402L,R | 0700074 | CF 330KΩ ±5% 1/16W |
| R403L,R | 0700056 | CF 15KΩ ±5% 1/16W |
| R405L,R | 0700027 | CF 100Ω ±5% 1/16W |
| R406 | 0700032 | CF 220Ω ±5% 1/16W |
| R407L,R | 0700041 | CF 1KΩ ±5% 1/16W |
| R408L,R | 0700041 | CF 1KΩ ±5% 1/16W |
| R409L,R | 0700067 | CF 100KΩ ±5% 1/16W |
| R411L,R | 0700058 | CF 22KΩ ±5% 1/16W |
| R412L,R | 0700049 | CF 4.7KΩ ±5% 1/16W |
| R421L,R | 0700067 | CF 100KΩ ±5% 1/16W |
| R423L,R | 0700066 | CF 82KΩ ±5% 1/16W |
| R424L,R | 0700067 | CF 100KΩ ±5% 1/16W |
| R425L,R | 0700041 | CF 1KΩ ±5% 1/16W |
| R426L,R | 0700063 | CF 47KΩ ±5% 1/16W |
| R427L,R | 0700041 | CF 1KΩ ±5% 1/16W |
| R428L,R | 0700055 | CF 12KΩ ±5% 1/16W |
| R431L,R | 0700047 | CF 3.3KΩ ±5% 1/16W |
| R432L,R | 0700049 | CF 4.7KΩ ±5% 1/16W |
| R433L,R | 0700079 | CF 820KΩ ±5% 1/16W |
| R434L,R | 0700041 | CF 1KΩ ±5% 1/16W |

| SYMBOL NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| R436L,R | 0700026 | CF 82Ω ±5% 1/16W |
| R437L,R | 0700054 | CF 10KΩ ±5% 1/16W |
| R438L,R | 0700043 | CF 1.5KΩ ±5% 1/16W |
| R439 | 0700053 | CF 8.2KΩ ±5% 1/16W |
| R440L,R | 0700054 | CF 10KΩ ±5% 1/16W |
| R441 | 0700032 | CF 220Ω ±5% 1/16W |
| R442 | 0129567 | CF 180Ω ±5% 1/4W |
| R443 | 1129571 | CF 270Ω ±5% 1/4W |
| R444 | 0700012 | CF 6.8Ω ±5% 1/16W |
| R445 | 0700058 | CF 22KΩ ±5% 1/16W |
| R446 | 0700034 | CF 330Ω ±5% 1/16W |
| R447 | 0700045 | CF 2.2KΩ ±5% 1/16W |
| R448 | 0700049 | CF 4.7KΩ ±5% 1/16W |
| R449 | 0700041 | CF 1KΩ ±5% 1/16W |
| R450 | 0700041 | CF 1KΩ ±5% 1/16W |
| R461 | 0700034 | CF 330Ω ±5% 1/16W |
| R462 | 0700037 | CF 560Ω ±5% 1/16W |
| R463 | 0700054 | CF 10KΩ ±5% 1/16W |
| R465 | 0700054 | CF 10KΩ ±5% 1/16W |
| R466 | 0700054 | CF 10KΩ ±5% 1/16W |
| R469 | 0700054 | CF 10KΩ ±5% 1/16W |
| R470 | 0700054 | CF 10KΩ ±5% 1/16W |
| R471 | 0700063 | CF 47KΩ ±5% 1/16W |
| R472 | 0119688 | MO 0.22Ω ±5% 1W |
| R481L,R | 0700051 | CF 5.6KΩ ±5% 1/16W |
| R482L,R | 0700053 | CF 8.2KΩ ±5% 1/16W |
| R483L,R | 0700058 | CF 22KΩ ±5% 1/16W |
| R484L,R | 0700061 | CF 33KΩ ±5% 1/16W |
| R485 | 0700054 | CF 10KΩ ±5% 1/16W |
| R486L,R | 0700048 | CF 3.9KΩ ±5% 1/16W |
| R487 | 0700032 | CF 220Ω ±5% 1/16W |
| R488L,R | 0700076 | CF 470KΩ ±5% 1/16W |
| R489L,R | 0700056 | CF 15KΩ ±5% 1/16W |
| R490L,R | 0700052 | CF 6.8KΩ ±5% 1/16W |
| R491L,R | 0700061 | CF 33KΩ ±5% 1/16W |
| R501L,R | 0700056 | CF 15KΩ ±5% 1/16W |
| R503L,R | 0700055 | CF 12KΩ ±5% 1/16W |
| R504L,R | 0700029 | CF 150Ω ±5% 1/16W |
| R505L,R | 0129509 | CF 2.2Ω ±5% 1/4W |
| R506L,R | 01195102 | MO 56Ω ±10% 2W |
| R507L,R | 0700058 | CF 22KΩ ±5% 1/16W |
| R508L,R | 0700056 | CF 15KΩ ±5% 1/16W |
| R509L,R | 0700054 | CF 10KΩ ±5% 1/16W |
| R531L,R | 0700061 | CF 33KΩ ±5% 1/16W |
| R532L,R | 0700025 | CF 68Ω ±5% 1/16W |
| R533L,R | 0700054 | CF 10KΩ ±5% 1/16W |
| R534L,R | 0129509 | CF 2.2Ω ±5% 1/4W |
| R536L,R | 0700029 | CF 150Ω ±5% 1/16W |
| R537 | 01132972 | CF 680Ω ±5% 1/2W |
| R538 | 0700037 | CF 560Ω ±5% 1/16W |
| R540 | 0700052 | CF 6.8KΩ ±5% 1/16W |
| R551 | 0700035 | CF 390Ω ±5% 1/16W |
| R671 | 0700063 | CF 47KΩ ±5% 1/16W |
| R672 | 0700054 | CF 10KΩ ±5% 1/16W |
| R673 | 0700068 | CF 120KΩ ±5% 1/16W |

| SYMBOL NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| R674 | 0700054 | CF 10KΩ ±5% 1/16W |
| R675 | 0700053 | CF 8.2KΩ ±5% 1/16W |
| R676 | 0700049 | CF 4.7KΩ ±5% 1/16W |
| R677 | 0700055 | CF 12KΩ ±5% 1/16W |
| R701 | 0700054 | CF 10KΩ ±5% 1/16W |
| R702 | 0700035 | CF 390Ω ±5% 1/16W |
| R741 | 0129579 | CF 560Ω ±5% 1/4W |
| R742 | 0129577 | CF 470Ω ±5% 1/4W |
| R743 | 0129579 | CF 560Ω ±5% 1/4W |
| R810 | 0129561 | CF 100Ω ±5% 1/4W |
| R811L,R | 0700055 | CF 12KΩ ±5% 1/16W |
| R812L,R | 0700054 | CF 10KΩ ±5% 1/16W |
| R813L,R | 0700051 | CF 5.6KΩ ±5% 1/16W |
| R814L,R | 0700051 | CF 5.6KΩ ±5% 1/16W |
| R815L,R | 0700051 | CF 5.6KΩ ±5% 1/16W |
| R816L,R | 0700075 | CF 390KΩ ±5% 1/16W |
| R817L,R | 0700059 | CF 27KΩ ±5% 1/16W |
| R818L,R | 0700041 | CF 1KΩ ±5% 1/16W |
| R819L,R | 0700041 | CF 1KΩ ±5% 1/16W |
| R821L,R | 0700055 | CF 12KΩ ±5% 1/16W |
| R822L,R | 0700054 | CF 10KΩ ±5% 1/16W |
| R823L,R | 0700052 | CF 6.8KΩ ±5% 1/16W |
| R824L,R | 0700051 | CF 5.6KΩ ±5% 1/16W |
| R825L,R | 0700053 | CF 8.2KΩ ±5% 1/16W |
| R831L,R | 0700074 | CF 330KΩ ±5% 1/16W |
| R832L,R | 0700043 | CF 1.5KΩ ±5% 1/16W |
| R833L,R | 0700032 | CF 220Ω ±5% 1/16W |
| | ICS&TRANSISTORS; | |
| IC101 | 2398201 | TA7358P |
| IC201 | 2389511 | TA7640AP |
| IC301 | 23010412 | TA7343AP |
| IC401 | 23011912 | TA7784P |
| IC402 | 23008312 | μPC4558C |
| IC501 | 2389521 | μPC1278H |
| IC531 | 2389521 | μPC1278H |
| IC701 | 23696122 | BA6137 |
| Q171 | 2319083 | HIT9011GH [for E,E(BS)] |
| Q201 | 2329453 | 2SC945PA [for E,E(BS)] |
| Q201 | 2329459 | KSC945-CG [except E,E(BS)] |
| Q202 | 2329582 | 2SA933R(R) |
| Q301 | 2329582 | 2SA933R(R) |
| Q431L,R | 2325723 | 2SC1740S-S |
| Q432L,R | 2329459 | KSC945-CG [except H,HC] |
| Q432L,R | 2329453 | 2SC945PA [for H,HC] |
| Q441 | 2329453 | 2SC945PA |
| Q461 | 2317803 | 2SD1266P [for H,HC] |
| Q461 | 2318433 | 2SD2061(F) [except H,HC] |
| Q481L,R | 2325723 | 2SC1740S-S |
| Q482L,R | 2329316 | 2SC1741QR |
| Q531L,R | 2329316 | 2SC1741QR |
| Q532 | 2329582 | 2SA933R(R) |
| Q661 | 2325723 | 2SC1740S-S |

| SYMBOL NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| Q662 | 2325723 | 2SC1740S-S |
| Q663 | 2325723 | 2SC1740S-S |
| Q664 | 2329582 | 2SA933R(R) |
| Q801L,R | 2325723 | 2SC1740S-S |
| | DIODES; | |
| D101 | 2398921 | 1N4531T |
| D102 | 2398921 | 1N4531T |
| D103 | 23380312 | 1S2790 |
| D201 | 2398921 | 1N4531T |
| D202 | 2329582 | 2SA933R(R) |
| D351 | 2398921 | 1N4531T |
| D352 | 2398921 | 1N4531T |
| D353 | 2398921 | 1N4531T |
| D354 | 2397421 | 1SS133T |
| D355 | 2398921 | 1N4531T |
| D356 | 2398921 | 1N4531T |
| D357 | 2398921 | 1N4531T |
| D358 | 2398921 | 1N4531T |
| D359 | 2398921 | 1N4531T |
| D360 | 2398921 | 1N4531T |
| D361 | 2398921 | 1N4531T |
| D362 | 2398921 | 1N4531T |
| D363 | 2398921 | 1N4531T |
| D364 | 2398921 | 1N4531T |
| D381 | 2397611 | LN242RPH-LF |
| D462 | 2398921 | 1N4531T |
| D463 | 2398921 | 1N4531T |
| D464 | 2398921 | 1N4531T |
| D501 | 2398921 | 1N4531T |
| D531 | 2398921 | 1N4531T |
| D601 | 2398062 | 1N4001 |
| D602 | 2398062 | 1N4001 |
| D603 | 2398062 | 1N4001 |
| D604 | 2398062 | 1N4001 |
| D605 | 2398062 | 1N4001 [for W,W(UN),W(AU)] |
| D701 | 23390312 | SLR-34UR5 |
| D702 | 23390312 | SLR-34UR5 |
| D703 | 23390312 | SLR-34UR5 |
| D704 | 23390312 | SLR-34UR5 |
| D705 | 23390312 | SLR-34UR5 |
| D731 | 23390312 | SLR-34UR5 |
| D732 | 23390312 | SLR-34UR5 |
| D733 | 23390312 | SLR-34UR5 |
| D734 | 23390312 | SLR-34UR5 |
| D735 | 23390312 | SLR-34UR5 |
| D741 | 23390312 | SLR-34UR5 |
| D742 | 23390342 | SLR-34MG5F |
| D743 | 23390342 | SLR-34MG5F |
| ZD461 | 23375272 | HZ9C1 |
| ZD741 | 23375872 | HZ5C1 |

| SYMBOL NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| | | VARIABLE RESISTORS; |
| R300 | 0160323 | 5kΩ-(B) (FM MPX ADJ.) |
| R661 | 0158924 | 5kΩ-(B) (TAPE SPEED ADJ.) |
| R801 | 0189284 | 100kΩ-(B) (G.E. CONTROL) |
| R802 | 0189284 | 100kΩ-(B) (G.E. CONTROL) |
| R803 | 0189284 | 100kΩ-(B) (G.E. CONTROL) |
| R804 | 0189284 | 100kΩ-(B) (G.E. CONTROL) |
| R805 | 0189284 | 100kΩ-(B) (G.E. CONTROL) |
| R851 | 0189131 | 10kΩ-(A) (VOLUME CONTROL) |
| | | COILS&TRANSFORMERS; |
| L001 | 2227352 | Peaking coil |
| L101 | 2137683 | FM RF coil |
| L102 | 2135274 | FM OSC coil |
| L151 | 2137662 | SW ANT coil [for E,E(BS)] |
| L151 | 2137821 | SW antenna coil [except E,E(BS)] |
| L152 | 2757994 | Ferrite antenna [for E,E(BS)] |
| L152 | 2757982 | Ferrite antenna [except E,E(BS)] |
| L154 | 2137671 | SW OSC coil [for E,E(BS)] |
| L154 | 2137672 | SW OSC coil [except E,E(BS)] |
| L155 | 2137631 | MW OSC coil [for E,E(BS)] |
| L155 | 2137633 | SW OSC coil [except E,E(BS)] |
| L156 | 2137642 | LW OSC coil [for E,E(BS)] |
| L156 | 2137631 | MW OSC coil [except E,E(BS)] |
| L171 | 2137684 | Choke coil |
| L431L,R | 2227991 | Choke coil (3.3mH) |
| L661 | 2227352 | Choke coil 22μH |
| T101 | 2154962 | FM IF transformer |
| T201 | 2154952 | AM IF transformer |
| T202 | 2154964 | FM IF transformer |
| T203 | 2154951 | AM IF transformer |
| T441 | 2137651 | REC OSC transformer |
| ⚠T601 | 2267481 | Power trans (220V) [for E] |
| ⚠T601 | 2267482 | Power trans [for E(BS)] |
| ⚠T601 | 2267483 | Power trans [for H,HC] |
| ⚠T601 | 2267484 | Power trans (3VOL) [for W,W(UN),W(AU)] |
| | | MISCELLANEOUS; |
| CP101 | 2137191 | FM band pass filter |
| CT151 | 0283130 | Capacitor semi variable [for E,E(BS)] |
| CT151 | 02835571 | Trimmer [except E,E(BS)] |
| CT154 | 02835571 | Trimmer [for E,E(BS)] |
| CT154 | 0283130 | Capacitor semi variable [except E,E(BS)] |
| CT156 | 0282148 | Capacitor semi variable [for E,E(BS)] |
| CV101 | 0282202 | Capacitor variable |
| ⚠F601 | 2727727 | Fuse [for W,W(UN),W(AU)] |
| ⚠F601 | 2728034 | Fuse (400mA) [for H,HC] |
| ⚠F601 | 2727728 | Fuse T160mA [for E,E(BS)] |

| SYMBOL NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| ⚠F602 | 2727964 | Fuse (2.5A 125V) [for H,HC] |
| ⚠F602 | 2728076 | Fuse (T2A) [except H,HC] |
| ⚠F604 | 2728034 | Fuse (400mA) [for H,HC] |
| ⚠F604 | 2727721 | Fuse [except H,HC] |
| P602 | 2689463 | 2P terminal |
| MF201 | 2135321 | Ceramic filter |
| S101 | 2628531 | Lever switch (BAND SELECT) |
| S301 | 2629369 | Lever switch (FM MODE/DUBBING SPEED SELECT) |
| S401 | 2628531 | Lever switch (FUNCTION SELECT) |
| S402 | 2628523 | Slide switch (REC/PLAY SELECT) |
| S403 | 2629369 | Lever switch (TAPE SELECT) |
| S441 | 2629261 | Slide switch (RIF) |
| S551 | 2600240 | Push switch (SURROUND/3D) |
| ⚠S601 | 2628671 | Switch, slide (AC/DC SELECT) |
| ⚠S602 | 2628294 | Rotary swith (VOLTAGE SELECT) [for W,W(UN),W(AU)] |
| ⚠S651 | 2639869 | Push switch (OPERATE) |
| | 3809041 | LED holder |
| | 3950522 | LED holder |
| J401 | 2678201 | 2P Pin jack |
| J571 | 2678761 | Stereo jack |
| J601 | 2678881 | DC jack [for W,W(UN),W(AU)] |
| | | for ACCESSORY; |
| ⚠ | 26679222 | Siemens plug [for W,W(UN),W(AU)] |

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# TRK-3D88 TY No. 648EF

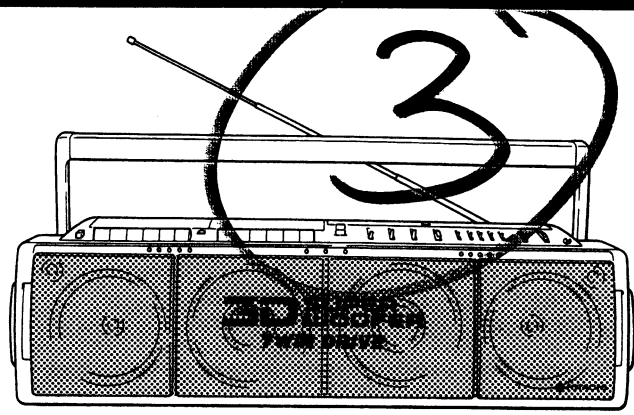
Printed in Japan (G)

# HITACHI
# SERVICE MANUAL

TY | No. 594 EF

# TRK-3D80
[H, HC, E, E(BS), W, W(UN), AU]

for E, E(BS)
TN-21SW-1416 chassis
except E, E(BS)
TN-521ZHW-160 chassis



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## SAFETY PRECAUTIONS

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety-related characteristics, always use genuine Hitachi's replacement parts. Especially critical parts in the power circuit block should not be replaced with other makers. Critical parts are marked with ⚠ in the circuit diagram and printed wiring board.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

## *SPECIFICATIONS*

### ●RADIO SECTION

**Circuit System:** FM/SW/MW/LW-4bands superheterodyne [for E, E(BS)]
FM/SW2/SW1/MW(AM)-4bands superheterodyne [except E, E(BS)]

**Tuning Range:**
FM: 88 to 108 MHz [except E, E(BS)]
FM: 87.5 to 108 MHz [for E, E(BS)]
SW: 6 to 18 MHz [for E, E(BS)]
SW2: 7 to 22 MHz [except E, E(BS)]
SW1: 2.3 to 7 MHz [except E, E(BS)]
MW(AM): 530 to 1,605 kHz
LW: 150 to 285 kHz [for E, E(BS)]

**Intermediate Frequency:**
FM: 10.7 MHz
SW/MW/LW: 465 kHz [for E, E(BS)]
SW2/SW1/MW(AM): 455 kHz [except E, E(BS)]

**Sensitivity:**
FM: 13 dB (pra.)
5 dB (max.)
SW: 30 dB (pra.) [for E, E(BS)]
15 dB (max.) [for E, E(BS)]

**SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.**

# HIGH PERFORMANCE PORTABLE CREATIVE SOUND SYSTEM


July 1988 YOKOHAMA WORKS

| | |
|---|---|
| | SW2: 30 dB (pra.) [except E, E(BS)]<br>20 dB (max.) [except E, E(BS)] |
| | SW1: 48 dB (pra.) [except E, E(BS)]<br>35 dB (max.) [except E, E(BS)] |
| | MW(AM): 50 dB (pra.)<br>35 dB (max.) |
| | LW: 55 dB (pra.) [for E, E(BS)]<br>40 dB (max.) [for E, E(BS)] |
| **Antennas:** | FM/SW/SW2: Rod antenna |
| **(Aerials)** | SW1/MW(AM)/LW: Built in ferrite antenna |

## ● TAPE RECORDER SECTION

| | |
|---|---|
| **Tape:** | Cassette tape |
| **Track System:** | 4tracks 2channels stereo |
| **Tape Speed:** | 4.75 cm/sec. |
| **Recording System:** | AC bias (TAPE2) |
| **Erasing System:** | Magnet erase (TAPE2) |
| **Erasing Ratio:** | 60 dB |
| **Frequency Response:** | Normal: 50 to 12,000 Hz |
| | $CrO_2$: 50 to 13,000 Hz |
| **Signal to Noise Ratio:** | 45 dB |
| **Wow and Flutter:** | 0.25% (W·RMS) |
| **Cross Talk:** | Between tracks: 60 dB [for E, E(BS)]<br>55 dB [except E, E(BS)] |
| | Between channels: 30 dB |
| **Input sensitivity and impedance:** | CD/Line-in: 650 mV, 25 kΩ |
| **Output road impedance:** | Headphones: 8 to 300 Ω |
| **Distortion:** | 3% |
| **Motor:** | DC micro motor |
| **Head:** | Permalloy |

## ● GENERAL SECTION

| | |
|---|---|
| **Semiconductors:** | ICs: 8 |
| | Transistors: 23 [except E, E(BS)]<br>24 [for E,E(BS)] |
| | Diodes: 28 [except W, W(UN)]<br>29 [for W, W(UN)] |
| | LEDs: 14 |
| | Varicap: 1 |
| **Power Supply:** | AC: 120V, 60 Hz [for H, HC] |
| | AC: 220V, 50 Hz [for E] |
| | AC: 240V, 50 Hz [for E(BS), AU] |
| | AC: 110–127V/200–220V/230–250V, 50/60 Hz [for W, W(UN)] |
| | DC: 12V [IEC R20 ("D" CELL) x 8 or equipment] |
| | Car: Use 12V car battery adaptor [for W, W(UN)] |
| **Battery life:** | During playback: 9.5 hours |
| | During recording: 13.5 hours |
| | 3D switch ON (EIAJ) |
| **Power Consumption:** | 27W |
| **Power Output:** | 80W P.M.P. (AC operation) [for E, E(BS)] |
| | 100W P.M.P. (AC operation) [for W, W(UN), AU] |
| | 3W x 2 + 4W x 2 (10% T.H.D. DC operation) |
| **Speakers:** | 12cm, 4 Ω (x 2) |
| | 16cm, 4 Ω (x 2) |
| **Dimensions:** | 650 (W) x 200 (H) x 242 (D) mm |
| **Weight:** | 6.6 kg (with batteries) |

Specifications are subject to change without notice for performance improvement.

## PRÉCAUTIONS DE SÉCURITÉ

Les précautions suivantes doivent être observées chaque fois qu'une réparation doit être faite.

1. Etant donné que de nombreux composants de l'appareil possèdent des caractéristiques relatives à la sécurité, utiliser uniquement des pièces de rechange d'origine Hitachi pour effectuer un remplacement. Ceci se rapporte notamment aux pièces critiques du bloc d'alimentation qui ne doivent en aucun cas être remplacées par celles d'autres fabricants. Les pièces critiques sont accompagnés du symbole ⚠ dans le plan de circuit et sur le plan de base.
2. Avant de retourner l'appareil répare au client le technicien doit procéder à un essai complet pour s'assurer qu'il ne présente aucun danger de chocs électriques.

# *CARACTÉRISTIQUES TECHNIQUES*

## ● SECTION RADIO

| | |
|---|---|
| **Systéme de circuit:** | 4 gammes d'ondes FM/OC/PO/GO à superhétérodyne [pour E, E(BS)] |
| | 4 gammes d'ondes FM/OC2/OC1/PO(AM) à superhétérodyne [sauf E, E(BS)] |
| **Gammes d'accord:** | FM: De 88 à 108 MHz [sauf E, E(BS)] |
| | FM: De 87,5 à 108 MHz [pour E, E(BS)] |
| | OC: De 6 à 18 MHz [pour E, E(BS)] |
| | OC2: De 7 à 22 MHz [sauf E, E(BS)] |
| | OC1: De 2,3 à 7 MHz [sauf E, E(BS)] |
| | PO(AM): De 530 à 1605 kHz |
| | GO: De 150 à 285 kHz [pour E, E(BS)] |
| **Fréquence intermédiaire:** | FM: 10.7 MHz |
| | OC/PO/GO: 465 kHz [pour E, E(BS)] |
| | OC2/OC1/PO(AM): 455 kHz [sauf E, E(BS)] |
| **Sensibilite:** | FM: 13 dB (utile)<br>5 dB (max.) |
| | OC: 30 dB (utile) [pour E, E(BS)]<br>15 dB (max.) [pour E, E(BS)] |
| | OC2: 30 dB (utile) [sauf E, E(BS)]<br>20 dB (max.) [sauf E, E(BS)] |
| | OC1: 48 dB (utile) [sauf E, E(BS)]<br>35 dB (max.) [sauf E, E(BS)] |
| | PO(AM): 50 dB (utile)<br>35 dB (max.) |
| | GO: 55 dB (utile) [pour E, E(BS)]<br>40 dB (max.) [pour E, E(BS)] |
| **Antennes:** | FM/OC/OC2: antenne télescopique (aérien) |
| **(aériens)** | OC1/PO(AM)/GO: antenne à noyau de ferrite incorporé (aérien) |

## ● SECTION LECTEUR-ENREGISTREUR DE CASSETTE

| | |
|---|---|
| **Bande:** | En cassette |
| **Système de piste:** | 4 pistes, 2 canaux stéréo |
| **Vitesse de défilement:** | 4,75 cm/s |
| **Système d'enregistrement:** | Polarisation c.a. (TAPE2) |
| **Système d'effacement:** | Aimant (TAPE2) |

| | |
|---|---|
| **Système de frèquence en lecture:** | Normal: De 50 à 12000 Hz<br>$CrO_2$: De 50 à 13000 Hz |
| **Rapport signal-bruit:** | 45 dB |
| **Pleurage et scintillement:** | 0,25% (watts effic.) |
| **Diaphonie:** | Entre les pistes: 60 dB [pour E, E(BS)]<br>55 dB [sauf E, E(BS)]<br>Entre les canaux: 30 dB |
| **Impédance et sensibilité d'entrée:** | CD/entrée ligne: 650 mV, 25 kΩ |
| **Impédance de charge de sortie:** | De 8 à 300 Ω (casque) |
| **Distortion:** | 3% |
| **Moteur:** | Micro moteur CC |
| **Tête:** | Permalloy |

## ●CARACTÉRISTIQUES GÉNÉRALES

| | |
|---|---|
| **Semi conducteurs:** | Circuits intégrés: 8<br>Transistors: 23 [sauf E, E(BS)]<br>24 [pour E, E(BS)]<br>Diodes: 28 [sauf W, W(UN)]<br>29 [pour W, W(UN)]<br>Diodes électroluminescentes: 14<br>Condensateur variable: 1 |
| **Alimentation:** | Secteur alternatif: 120V, 60 Hz [pour H, HC]<br>220V, 50 Hz [pour E]<br>240V, 50 Hz [pour E(BS), AU]<br>110−127V/200−220V /230−250V, 50/60 Hz [pour W, W(UN)]<br>Courant continu: 12V [IEC R20 (pile "D") x 8 ou l'équivalent]<br>Voiture: utiliser un adaptateur pour batterie 12V [pour W, W(UN)] |
| **Autonomie des piles:** | Lors do la reproduction: 9,5 heures<br>Lors de l'enregistrement: 13,5 heures<br>Commutateur 3D ON (EIAJ) |
| **Consommation électrique:** | 27W |
| **Niveau de sortie:** | 80W PMP (fonctionnement sur le secteur) [pour E, E(BS)]<br>100W PMP (fonctionnement sur le secteur) [pour W, W(UN), AU]<br>3W x 2 + 4W x 2 (C.C. à 10% D.H.T.) |
| **Haut-parleurs:** | 12 cm, 4 Ω (x 2)<br>16 cm, 4 Ω (x 2) |
| **Dimensions:** | 650 (L) x 200 (H) x 242 (D) mm |
| **Poids:** | 6.6 kg (piles comprises) |

Les caractéristiques techniques peuvent être modifiées sans préavis pour améliorations des performances.

# *DISASSEMBLY*

### 1. Front case (Fig. 1, 5, 6)
Remove the battery lid. Remove eight screws ① and pull out in the direction of arrow ⓐ. Remove one connector Ⓐ on the MA P.W.B. and one connector Ⓑ on the PA P.W.B..
*See Fig. 5 for connector Ⓐ and Fig. 6 for connector Ⓑ.

### 2. Top panel (Fig. 1)
Remove the band select konb, volume knob, function select knob, dubbing speed select knob and tape select knob. Open the cassette lid, remove three screws ②, and pull the top panel off in the direction of arrow ⓑ.

### 3. Cassette lid (Fig. 2)
Once the top panel has removed, press sections Ⓐ and Ⓑ in the direction of the arrow. While pressing the stopper, pull the cassette lid off in the direction of arrow ⓒ.
*Follow the same procedure for both TAPE 1 and TAPE 2.

### 4. LR P.W.B. (Fig. 3)
Once the front case has been removed, remove one screw ③ and two tabs.

### 5. LC P.W.B. (Fig. 3)
Once the front case has been removed, remove one screw ④ and two tabs.

### 6. LL P.W.B. (Fig. 4)
Once the front case has been removed, remove one screw ⑤ and two tabs.

### 7. VO P.W.B. (Fig. 4)
Pull off in the direction of arrow ⓓ.

### 8. PS P.W.B. (Fig. 4)
Pull off in the direction of arrow ⓔ.

### 9. SS P.W.B. (Fig. 4)
Pull off in the direction of arrow ⓕ.

### 10. OS P.W.B. (Fig. 4)
Pull off in the direction of arrow ⑨.

### 11. Handle (Fig. 4)
Press the stopper in the direction of the arrow and pull the handle off in the direction of arrow ⓗ.
*Follow the same procedure for both left and right sides.

### 12. MA P.W.B. (Fig. 5)
Remove five screws ⑥ and two connectors Ⓒ.

### 13. Cassette chassis (Fig. 6)
Remove six screws ⑦ and one connector ⓙ on the PA P.W.B..

### 14. PH P.W.B. (Fig. 6)
Remove one screw ⑧.

### 15. PA P.W.B. (Fig. 6)
Remove two screws ⑨ and pull the PA P.WB. off in the direction of arrow ⓘ.

# *DÉMONTAGE*

**1. Boîtier avant (Fig. 1, 5, 6)**
Déposer le couvercle du logement des piles. Enlever huit vis ① et tirer dans la direction de la flèche ⓐ. Enlever un connecteur Ⓐ sur la plaquette de circuits imprimés MA et un connecteur sur la plaquette Ⓑ de circuits imprimés PA.
*Voir la Fig. 5 pour le connecteur Ⓐ et la Fig. 6 pour le connecteur Ⓑ.

**2. Panneau supérieur (Fig. 1)**
Déposer le bouton de sélection de gamme, le bouton de volume, le bouton de sélection de fonction, le bouton de sélection de vitesse de copie et le bouton de sélection de bande. Ouvrir la porte du compartiment cassette, enlever trois vis ② et dégager le panneau supérieur dans la direction de la flèche ⓑ.

**3. Porte du compartiment cassette (Fig. 2)**
Une fois le panneau supérieur enlevé, appuyer sur les sections Ⓐ et Ⓑ dans la direction de la flèche. Tout en appuyant sur le dispositif d'arrêt, dégager la porte du compartiment cassette dans la direction de la flèche ⓒ.
*Suivre les mêmes procédures pour la platine 1 et la platine 2.

**4. Plaquette de circuits imprimés LR (Fig. 3)**
Une fois le boîtier avant déposé, enlever une vis ③ et deux agrafes.

**5. Plaquette de circuits imprimés LC (Fig. 3)**
Une fois le boîtier avant déposé, enlever une vis ④ et deux agrafes.

**6. Plaquette de circuits imprimés LL (Fig. 4)**
Une fois le boîtier avant déposé, enlever une vis ⑤ et deux agrafes.

**7. Plaquette de circuits imprimés VO (Fig. 4)**
Tirer dans la direction de la flèche ⓓ.

**8. Plaquette de circuits imprimés PS (Fig. 4)**
Tirer dans la direction de la flèche ⓔ.

**9. Plaquette de circuits imprimés SS (Fig. 4)**
Tirer dans la direction de la flèche ⓕ.

**10. Plaquette de circuits imprimés OS (Fig. 4)**
Tirer dans la direction de la flèche ⓖ.

**11. Poignée (Fig. 4)**
Appuyer sur le dispositif d'arrêt dans la direction de la flèche et dégager la poignée dans la direction de la flèche ⓗ.
*Suivre les mêmes procédures pour le côté de droite et le côté de gauche.

**12. Plaquette de circuits imprimés MA (Fig. 5)**
Enlever cinq vis ⑥ et deux connecteurs Ⓒ.

**13. Châssis de cassette (Fig. 6)**
Enlever six vis ⑦ et un connecteur Ⓓ sur la plaquette de circuits imprimés PA.

**14. Plaquette de circuits imprimés PH (Fig. 6)**
Enlever une vis ⑧.

**15. Plaquette de circuits imprimés PA (Fig. 6)**
Enlever deux vis ⑨ et dégager la plaquette de circuits imprimés PA dans la direction de la flèche ⓘ.

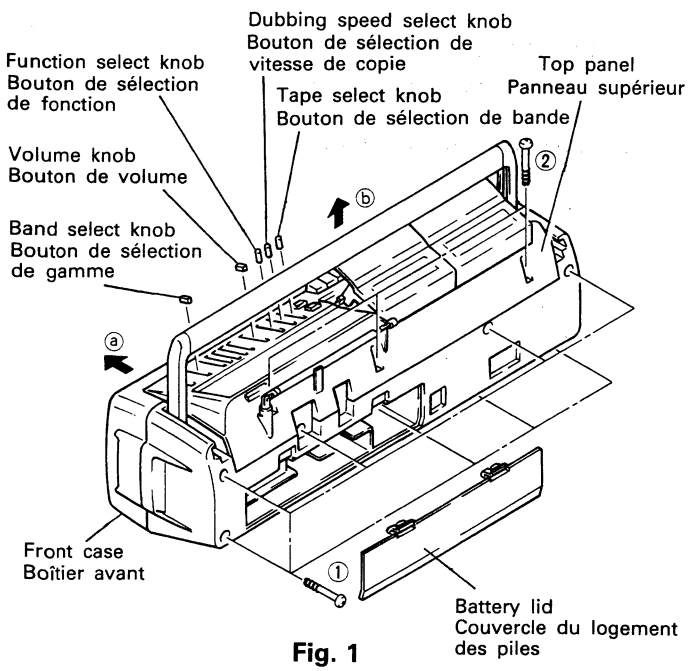



Fig. 1

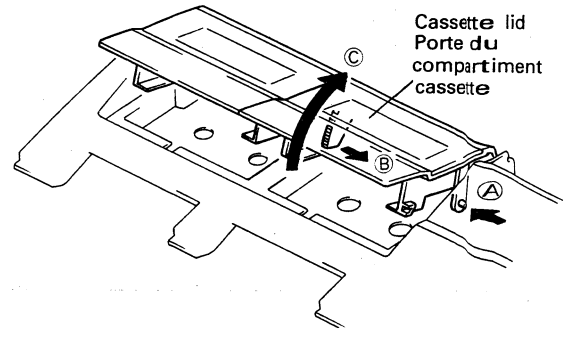



Fig. 2

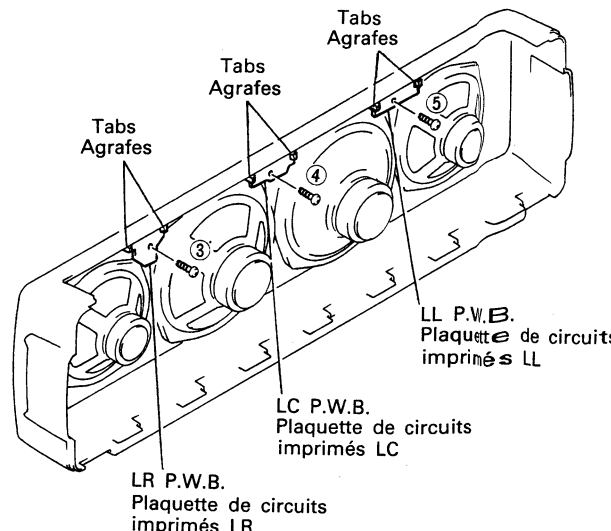



Fig. 3

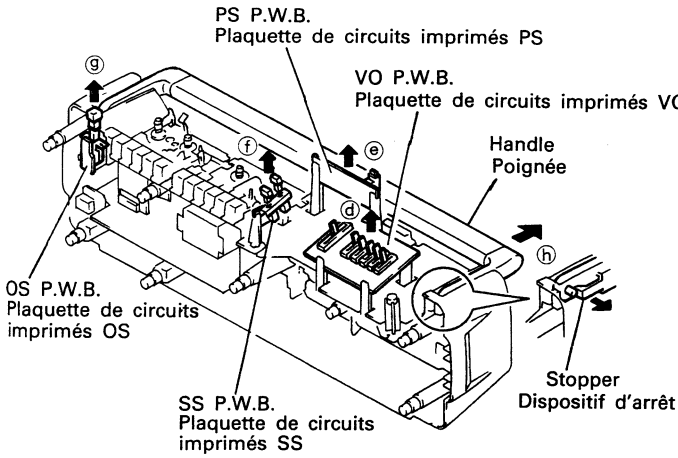



**Fig. 4**

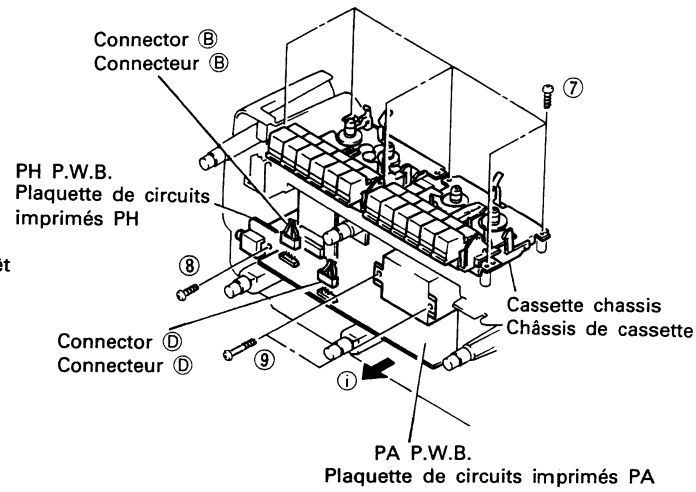



**Fig. 6**

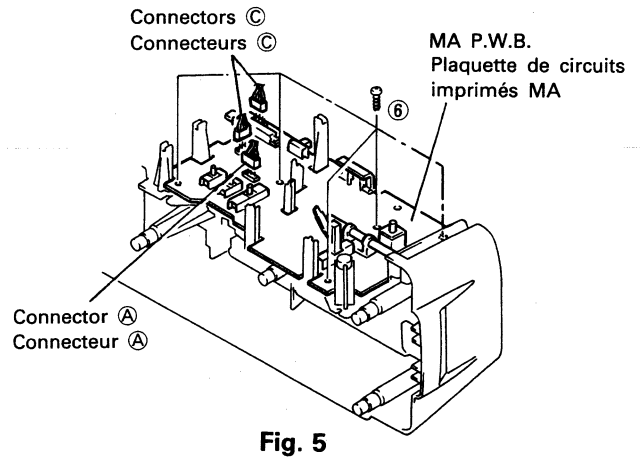



**Fig. 5**

## *DIAL CORD STRINGING*

Pull the pulley as far as it will go in the clockwise direction and set the pointer to the aligned position.

## *CHEMINEMENT DU CORDON D'ACCORD*

Tirer la poulie à fond dans le sens des aiguilles d'une montre et régler l'index sur la position alignée.

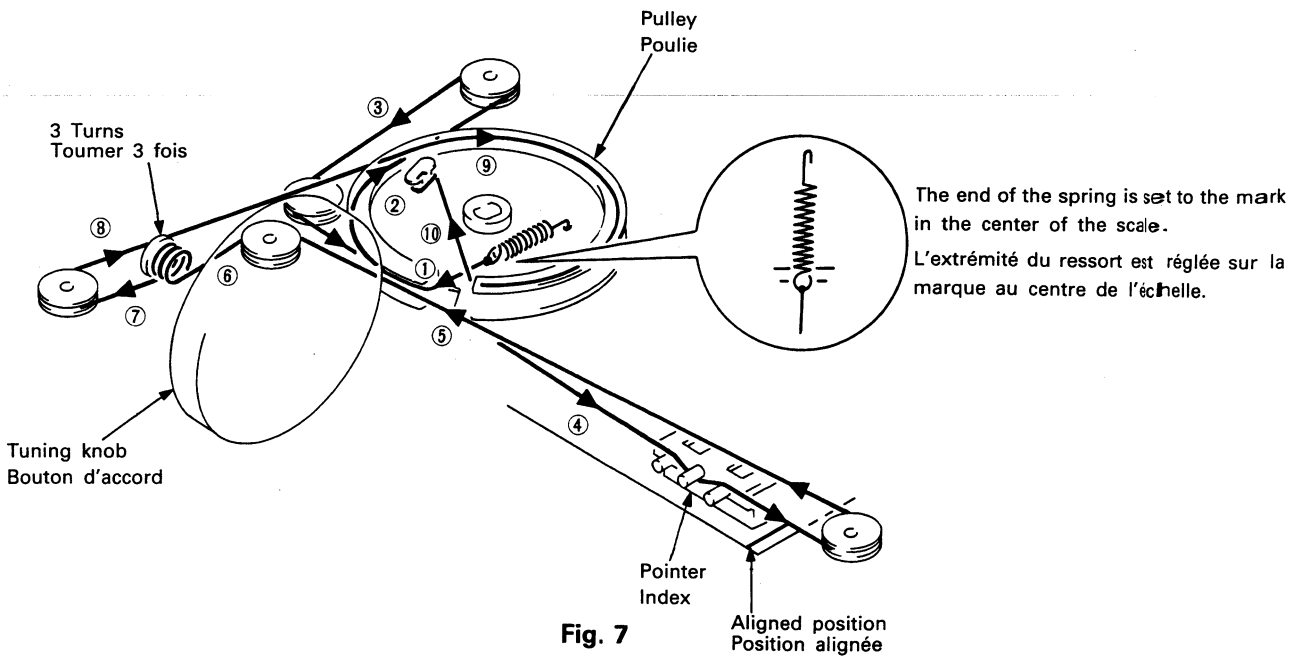



**Fig. 7**

# ADJUSTMENT

## 1. RADIO SECTION

- **Adjustment point [except E, E(BS)]**

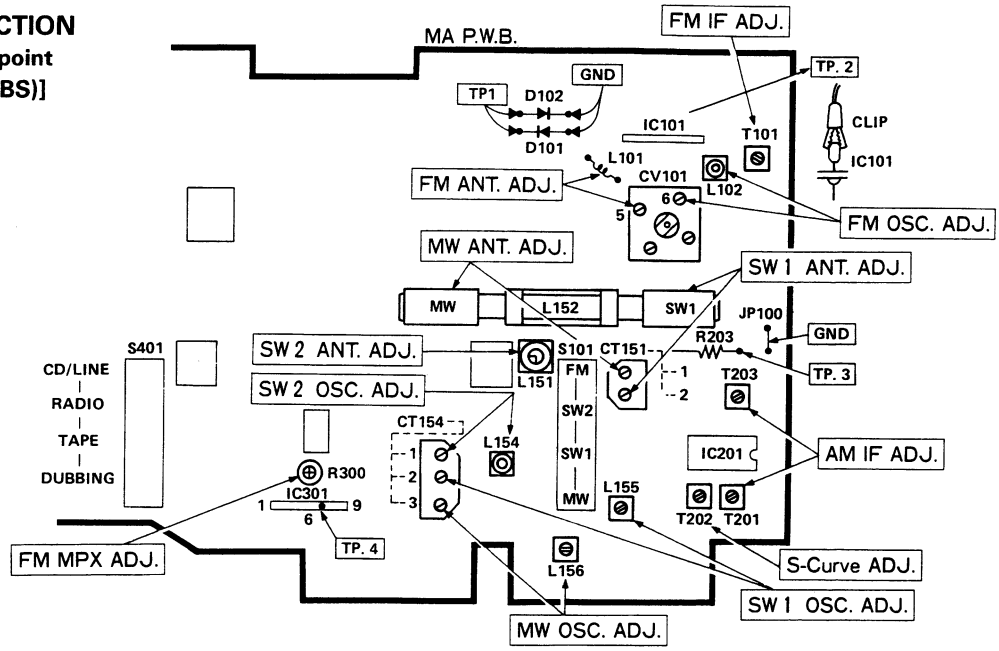



**Fig. 8**

### (1)-1 AM Section except E, E(BS) (FM/SW2/SW1/MW 4-bands)

| Step | | Adjustment Item | Measuring Instrument and Connection | | | Genescope or Signal Generator Frequency | Dial Pointer Position | Adjust | Reading |
|---|---|---|---|---|---|---|---|---|---|
| | | | Measuring Instrument | Input Terminal | Output Terminal | | | | |
| 1 | (1) | AM IF | • Genescope (455 kHz) | Ferrite antenna (Note 3) | TP.3 | 455 kHz | Highest | T201 T203 | (Note 1) |
| | (2) | | | | | Repeat step (1) | | | |
| 2 | (1) | SW2 OSC. (Covering) | • AM signal generator (400 Hz, 30% mod.) • VTVM • Oscilloscope | TP.1 (through SW dummy antenna) (Note 2) | TP.3 | 6.7 MHz | Lowest | L154 | Max. |
| | (2) | | | | | 23 MHz | Highest | CT154-1 | |
| | (3) | | | | | Repeat steps (1) and (2) | | | |
| 3 | (1) | SW2 ANT. (Tracking) | | | | 8 MHz | 8 MHz | L151 | Max. |
| 4 | (1) | SW1 OSC. (Covering) | • AM signal generator (400 Hz, 30% mod.) • VTVM • Oscilloscope | Ferrite antenna (Note 3) | TP.3 | 2.2 MHz | Lowest | L155 | Max. |
| | (2) | | | | | 7.3 MHz | Highest | CT154-2 | |
| | (3) | | | | | Repeat steps (1) and (2) | | | |
| 5 | (1) | SW1 ANT. (Tracking) | | | | 2.7 MHz | 2.7 MHz | L152 (SW1) | Max. |
| | (2) | | | | | 6.3 MHz | 6.3 MHz | CT151-2 | |
| | (3) | | | | | Repeat steps (1) and (2) | | | |
| 6 | (1) | MW OSC. (Covering) | • AM signal generator (400 Hz, 30% mod.) • VTVM • Oscilloscope | Ferrite antenna (Note 3) | TP.3 | 515 kHz | Lowest | L156 | Max. |
| | (2) | | | | | 1,650 kHz | Highest | CT154-3 | |
| | (3) | | | | | Repeat steps (1) and (2) | | | |
| 7 | (1) | MW ANT. (Tracking) | | | | 600 kHz | 600 kHz | L152 (MW) | Max. |
| | (2) | | | | | 1,400 kHz | 1,400 kHz | CT151-1 | |
| | (3) | | | | | Repeat steps (1) and (2) | | | |

● **Adjustment points**
**[for E, E(BS)]**

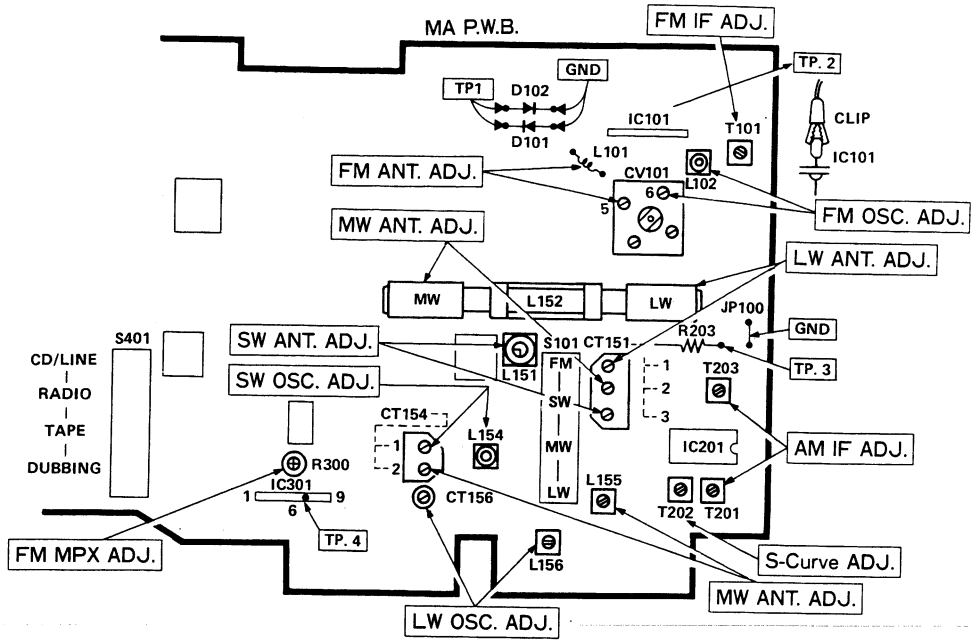



**Fig. 9**

**(1)-2 AM Section for E, E(BS) (FM/SW/MW/LW 4-bands)**

| Step | | Adjustment Item | Measuring Instrument and Connection | | | Genescope or Signal Generator Frequency | Dial Pointer Position | Adjust | Reading |
|---|---|---|---|---|---|---|---|---|---|
| | | | Measuring Instrument | Input Terminal | Output Terminal | | | | |
| 1 | (1) | AM IF | • Genescope (465 kHz) | Ferrite antenna (Note 3) | TP.3 | 465 kHz | Highest | T201 T203 | (Note 1) |
| | (2) | | | | | Repeat step (1) | | | |
| 2 | (1) | SW OSC. (Covering) | • AM signal generator (400 Hz, 30% mod.) • VTVM • Oscilloscope | TP.1 (through SW dummy antenna) (Note 2) | TP.3 | 5.8 MHz | Lowest | L154 | Max. |
| | (2) | | | | | 18.5 MHz | Highest | CT154-1 | |
| | (3) | | | | | Repeat steps (1) and (2) | | | |
| 3 | (1) | SW ANT. (Tracking) | | | | 6.5 MHz | 6.5 MHz | L151 | Max. |
| | (2) | | | | | 16 MHz | 16 MHz | CT151-3 | |
| | (3) | | | | | Repeat steps (1) and (2) | | | |
| 4 | (1) | MW OSC. (Covering) | • AM signal generator (400 Hz, 30% mod.) • VTVM • Oscilloscope | Ferrite antenna (Note 3) | TP.3 | 515 kHz | Lowest | L155 | Max. |
| | (2) | | | | | 1,650 kHz | Highest | CT154-2 | |
| | (3) | | | | | Repeat steps (1) and (2) | | | |
| 5 | (1) | MW ANT. (Tracking) | | | | 600 kHz | 600 kHz | L152 (MW) | Max. |
| | (2) | | | | | 1,400 kHz | 1,400 kHz | CT151-2 | |
| | (3) | | | | | Repeat steps (1) and (2) | | | |
| 6 | (1) | LW OSC. (Covering) | • AM signal generator (400 Hz, 30% mod.) • VTVM • Oscilloscope (RIF switch: B) | Ferrite antenna (Note 3) | TP.3 | 145 kHz | Lowest | L156 | Max. |
| | (2) | | | | | 290 kHz | Highest | CT156 | |
| | (3) | | | | | Repeat steps (1) and (2) | | | |
| 7 | (1) | LW ANT. (Tracking) | | | | 160 kHz | 160 kHz | L152 (LW) | Max. |
| | (2) | | | | | 270 kHz | 270 kHz | CT151-1 | |
| | (3) | | | | | Repeat steps (1) and (2) | | | |

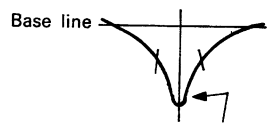
## (2)-1 FM Section

*( ) For W. Germany and Italy

| Step | | Adjustment Item | Measuring Instrument and Connection | | | Genescope or Signal Generator Frequency | Dial Pointer Position | Adjust | Reading |
|---|---|---|---|---|---|---|---|---|---|
| | | | Measuring Instrument | Input Terminal | Output Terminal | | | | |
| 1 | (1) | FM IF | Turn T202 fully counterclockwise | | | 10.7 MHz | Highest | T101 | (Note 4) |
| | (2) | S-Curve | • Genescope (10.7 MHz) | TP.2 | TP.3 | | | T202 | (Note 5) |
| 2 | (1) | FM OSC (Covering) | • FM signal generator (400 Hz, 30% dev.) • Oscilloscope • VTVM | TP.1 (through FM dummy antenna (Note 6) | TP.3 | 87 MHz *(87.5 MHz) | Lowest | L102 | Max. |
| | (2) | | | | | 109 MHz *(108 MHz) | Highest | CV101-6 | |
| | (3) | | | | | Repeat steps (1) and (2) | | | |
| 3 | (1) | FM ANT. (Tracking) | | | | 90 MHz | 90 MHz | L101 | Max. |
| | (2) | | | | | 106 MHz | 106 MHz | CV101-5 | |
| | (3) | | | | | Repeat steps (1) and (2) | | | |
| 4 | (1) | FM MPX (Multiplex) | • Frequency counter | Connect a 10μF/25V electrolytic capacitor between the NO. 1 pin of IC301 and GND | TP.4 (No. 6 pin of IC301) | — | — | R300 | 38 kHz± 50 Hz (Note 7) |

Note:

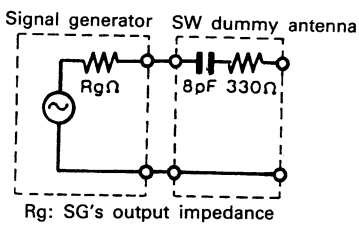
1. Feed in a weak signal from the genescope. Adjust T201, T203 for maximum gain and the waveform of Fig. 10.




Adjust the genescope output so that there is a little noise riding on the leading edge.

**Fig. 10**

2. SW dummy antenna shows Fig. 11.




Rg: SG's output impedance

**Fig. 11**

3. Connect AM signal generator to loop antenna, bring near to ferrite antenna.
4. Feed in a weak signal to TP2 from the genescope. Adjust T101 for maximum gain and the waveform indicated in Fig. 12. If the center of the waveform cannot be lined up on the marker, adjust the right/left balance.

Adjust the genescope output so that there is a little noise riding on the leading edge.

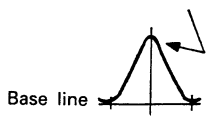



**Fig. 12**

5. Use the T202 core to form the S-curve shown in Fig. 13. Adjust the symmetry of A and B about point C for linearity.

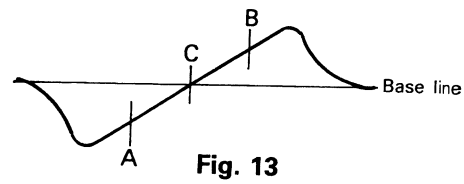
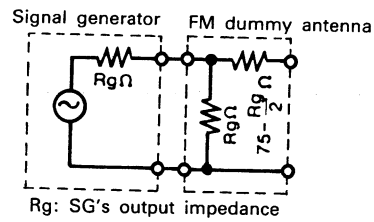



**Fig. 13**

6. FM dummy antenna shows Fig. 14.




Rg: SG's output impedance

**Fig. 14**

7. Connect the frequency counter to the No. 6 pin of IC301 and connect a 330kΩ resister parallel with the frequency counter.

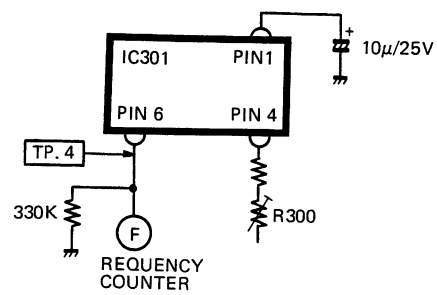



**Fig. 15**

## 2. TAPE RECORDER SECTION

Perform the following adjustments in the sequence stated after cleaning the head, pressure roller, and capstan with a head cleaning stick moistened in alcohol. (Note 1)

| Step | Adjustment Item | Measuring Instrument and Connection | | | Check Tape | Mode | Adjust | Reading |
|---|---|---|---|---|---|---|---|---|
| | | Measuring Instrument | Input Terminal | Output Terminal | | | | |
| 1 | Tape speed (Note 3) | • Frequency counter | — | Headphones Jack | Tape speed adjustment tape (3kHz) | Playback (TAPE 2) | R661 | 3kHz±20Hz (Note 2) |
| 2 | Head azimuth | • VTVM | — | Headphones Jack | Head azimuth adjustment tape (10kHz) | Playback | Azimuth adjusting screw. (Fig. 16) | Output max. (Note 4) |

Note:

1. Adjust within 30 sec. after heat-running for more than 20 minutes.
2. Should be confirm at TAPE 1 both in the FORWARD and REVERSE directions if the reading is outside the range of adjustment value, make readjustment so that the reading would be 2,975 to 3,030 Hz both in the FORWARD and REVERSE directions. (Forward and reverse switching cannot be performed with E or E(BS). Use this control for one-way operation.)
3. High speed adjustment is not necessary.
4. When the maximum values of both channels are different, adjust to the maximum value of the L channel. In this case, the difference between the maximum values of both channels should be within 2 dB.
(Should be confirm REVERSE direction at TAPE 1. When adjusting TAPE 1, forward and reverse switching cannot be performed with E or E(BS). Use this control for one-way operation.)

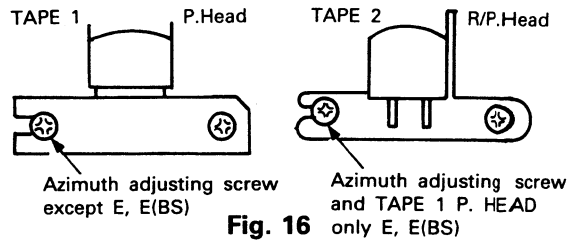



**Fig. 16**

### 3. Cassette Chassis Inspection

| No. | Inspection item | Reference value | Remarks |
|---|---|---|---|
| 1 | Playback torque | TN-521: 27 to 60 g·cm | |
| | | TN-21: 30 to 60 g·cm | |
| 2 | FF/REW torque | TN-521: 55 to 120 g·cm | |
| | | TN-21: 55 to 120 g·cm | |
| 3 | Supply back-tension | TN-521: 1.8 to 5.0 g·cm | |
| | | TN-21: 1 to 4 g·cm | |
| 4 | Tape drive force | TN-521: Over 50 g (TAPE 1) Over 100 g (TAPE 2) | |
| | | TN-21: Over 100 g | |

## LUBRICATION

Apply one or two drops of pan motor oil or sonic slider oil to rotating parts. Coat sliding parts with Molycoat (EL-10M). Lubricate once a year or every 1,000 hours of operation. Do not let oil contact belts or idlers.

| | | |
|---|---|---|
| Rotating parts | Metal to metal | Pan motor oil (10W-40) |
| | Plastics to metal | Sonic slider oil (#1600) |
| Sliding parts | (Note) Plastics to plastics Plastics to metal | Molycoat (EL-10M) |
| Spring vibration prevention | | Floyl (GB-TS-1) |

NOTE:
When front frame and slide knob are replaced, coat both contacting parts lightly with white grease.

## MAINTENANCE

■ **Clean cabinet and panels when dirty**

Clean off dirt on the surfaces with a dry cloth. Never use thinners, benzene or alcohol since these will damage the surface finish.

# *RÉGLAGE*

## 1. SECTION RADIO

- **Points de réglage [sauf E, E(BS)]**

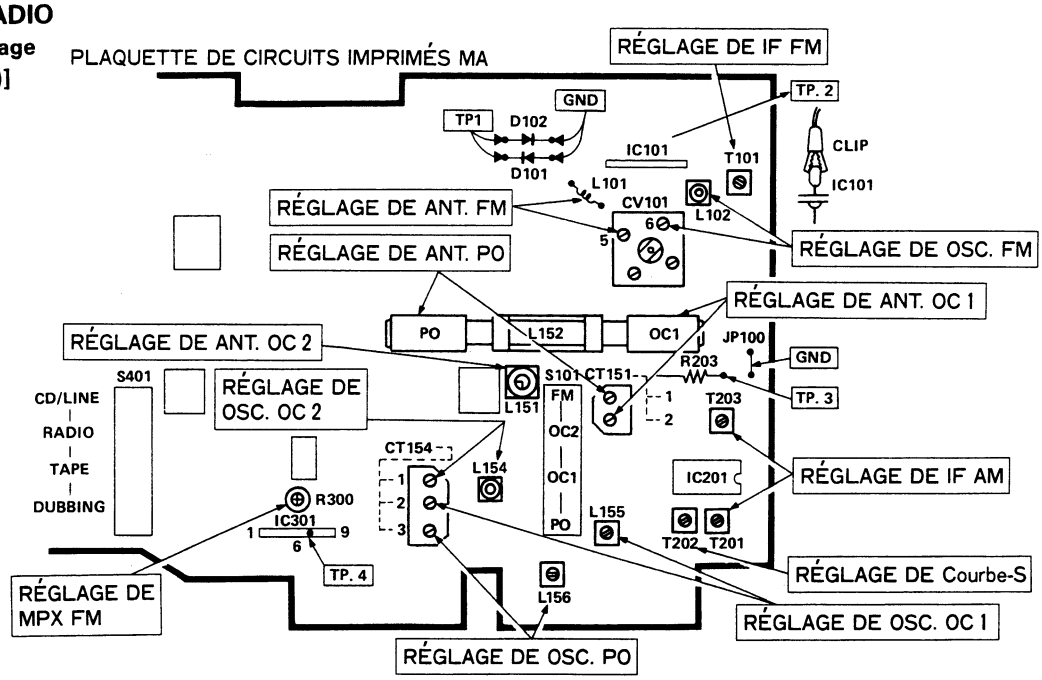



**Fig. 8**

### (1)-1 Section AM sauf E, E(BS) (FM/OC2/OC1/PO 4 gammes)

| Etape | | Objet de réglage | Instrument de mesure et branchements | | | Générateur ou fréquence du générateur de signal | Position de l'aiguille du cadran | Réglage | Lecture |
|---|---|---|---|---|---|---|---|---|---|
| | | | Instrument de mesure | Borne d'entrée | Borne de sortie | | | | |
| 1 | (1) | IF AM | • Générateur (455 kHz) | Antenne noyau en ferrite (Remarque 3) | TP.3 | 455 kHz | La plus haute | T201 T203 | (Remarque 1) |
| | (2) | | | | | Répéter étape (1) | | | |
| 2 | (1) | OSC. OC2 (coverture) | • Générateur de signal AM (400 Hz, mod. 30%) • VTVM • Oscilloscope | TP.1 (par le biais d'une antenne OC fictive) (Remarque 2) | TP.3 | 6,7 MHz | La plus basse | L154 | Max. |
| | (2) | | | | | 23 MHz | La plus haute | CT154-1 | |
| | (3) | | | | | Répéter les étapes (1) et (2) | | | |
| 3 | (1) | ANT. OC2 (poursuite) | | | | 8 MHz | 8 MHz | L151 | Max. |
| 4 | (1) | OSC. OC1 (coverture) | • Générateur de signal AM (400 Hz, mod. 30%) • VTVM • Oscilloscope | Antenne noyau en ferrite (Remarque 3) | TP.3 | 2,2 MHz | La plus basse | L155 | Max. |
| | (2) | | | | | 7,3 MHz | La plus haute | CT154-2 | |
| | (3) | | | | | Répéter les étapes (1) et (2) | | | |
| 5 | (1) | ANT. OC1 (poursuite) | | | | 2,7 MHz | 2,7 MHz | L152 (OC1) | Max. |
| | (2) | | | | | 6,3 MHz | 6,3 MHz | CT151-2 | |
| | (3) | | | | | Répéter les étapes (1) et (2) | | | |
| 6 | (1) | OSC. PO (coverture) | • Générateur de signal AM (400 Hz, mod. 30%) • VTVM • Oscilloscope | Antenne noyau en ferrite (Remarque 3) | TP.3 | 515 kHz | La plus basse | L156 | Max. |
| | (2) | | | | | 1650 kHz | La plus haute | CT154-3 | |
| | (3) | | | | | Répéter les étapes (1) et (2) | | | |
| 7 | (1) | ANT. PO (poursuite) | | | | 600 kHz | 600 kHz | L152 (PO) | Max. |
| | (2) | | | | | 1400 kHz | 1400 kHz | CT151-1 | |
| | (3) | | | | | Répéter les étapes (1) et (2) | | | |

● **Points de réglage**
**[pour E, E(BS)]**

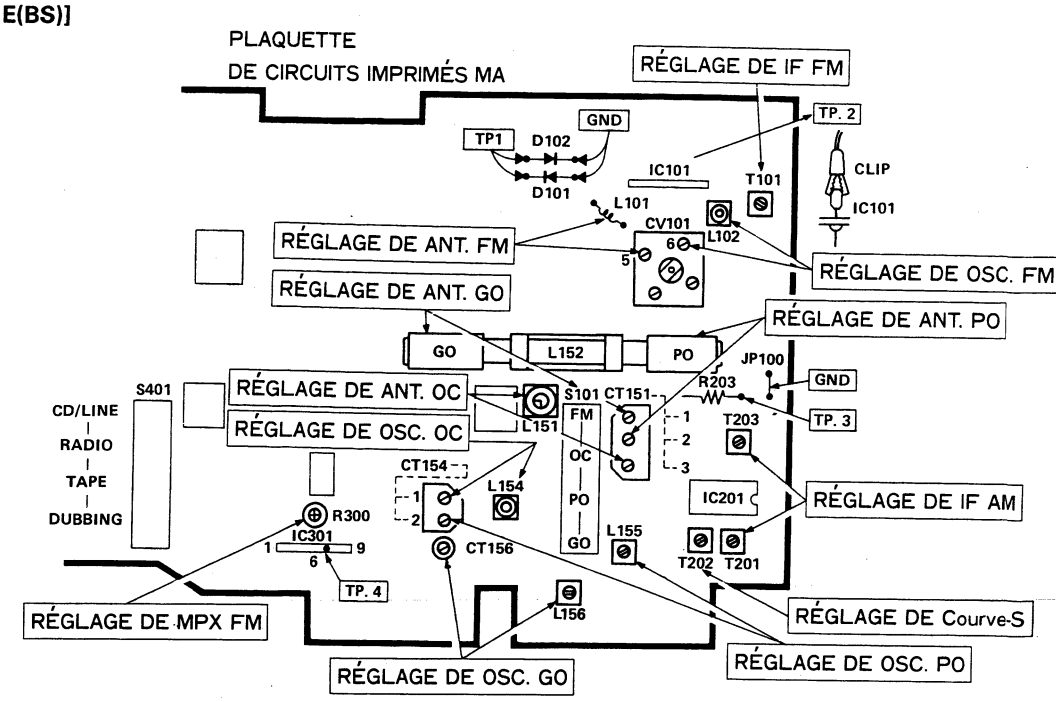



**Fig. 9**

## (1)-2 Section AM pour E, E(BS) (FM/OC/PO/GO 4 gammes)

| Etape | | Objet du réglage | Instrument de mesure et branchements | | | Généscope ou fréquence du générateur de signal | Position de l'aiguille du cadran | Réglage | Lecture |
|---|---|---|---|---|---|---|---|---|---|
| | | | Instrument de mesure | Borne d'entrée | Borne de sortie | | | | |
| 1 | (1) | IF AM | • Généscope (465 kHz) | Antenne noyau en ferrite (Remarque 3) | TP.3 | 465 kHz | La plus haute | T201 T203 | (Remarque 1) |
| | (2) | | | | | Répéter étape (1) | | | |
| 2 | (1) | OSC. OC (coverture) | • Générateur de signal AM (400 Hz, mod. 30%) • VTVM • Oscilloscope | TP.1 (par le biais d'une antenne OC fictive) (Remarque 2) | TP.3 | 5,8 MHz | La plus basse | L154 | Max. |
| | (2) | | | | | 18,5 MHz | La plus haute | CT154-1 | |
| | (3) | | | | | Répéter les étapes (1) et (2) | | | |
| 3 | (1) | ANT. OC (poursuite) | | | | 6,5 MHz | 6,5 MHz | L151 | Max. |
| | (2) | | | | | 16 MHz | 16 MHz | CT151-3 | |
| | (3) | | | | | Répéter les étapes (1) et (2) | | | |
| 4 | (1) | OSC. PO (coverture) | • Générateur de signal AM (400 Hz, mod. 30%) • VTVM • Oscilloscope | Antenne noyau en ferrite (Remarque 3) | TP.3 | 515 kHz | La plus basse | L155 | Max. |
| | (2) | | | | | 1650 kHz | La plus haute | CT154-2 | |
| | (3) | | | | | Répéter les étapes (1) et (2) | | | |
| 5 | (1) | ANT. PO (poursuite) | | | | 600 kHz | 600 kHz | L152 (PO) | Max. |
| | (2) | | | | | 1400 kHz | 1400 kHz | CT151-2 | |
| | (3) | | | | | Répéter les étapes (1) et (2) | | | |
| 6 | (1) | OSC. GO (coverture) | • Générateur de signal AM (400 Hz, mod. 30%) • VTVM • Oscilloscope | Antenne noyau en ferrite (Remarque 3) | TP.3 | 145 kHz | La plus basse | L156 | |
| | (2) | | | | | 290 kHz | La plus haute | CT156 | |
| | (3) | | | | | Répéter les étapes (1) et (2) | | | |
| 7 | (1) | ANT. GO (poursuite) | | | | 160 kHz | 160 kHz | L152 (GO) | |
| | (2) | | | | | 270 kHz | 270 kHz | CT151-1 | |
| | (3) | | | | | Répéter les étapes (1) et (2) | | | |

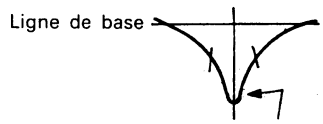
## (2)-1 Section FM

*( ) pour la RFA et Italie.

| Etape | | Objet du réglage | Instrument de mesure et branchement | | | Génèescope ou fréquence du générateur de signal | Position de l'aiguille du cadran | Réglage | Lecture |
|---|---|---|---|---|---|---|---|---|---|
| | | | Instrument de mesure | Borne d'entrée | Borne de sortie | | | | |
| 1 | (1) | IF FM | Tourner T202 à fond dans le sens des aiguilles d'une montre. | | | 10,7 MHz | La plus haute | T101 | (Remarque 4) |
| | (2) | Courbe-S | • Génèscope (10,7 MHz) | TP.2 | TP.3 | | | T202 | (Remarque 5) |
| 2 | (1) | OSC. FM (coverture) | • Générateur de signal FM (400 Hz, dév. 30%) • Oscilloscope • VTVM | TP.1 (par le biais d'une antenne FM fictive) (Remarque 6) | TP.3 | * 87 MHz (87,5 MHz) | La plus basse | L102 | Max. |
| | (2) | | | | | * 109 MHz (108 MHz) | La plus haute | CV101-6 | |
| | (3) | | | | | Répéter les étapes (1) et (2) | | | |
| 3 | (1) | ANT. FM (poursuite) | | | | 90 MHz | 90 MHz | L101 | Max. |
| | (2) | | | | | 106 MHz | 106 MHz | CV101-5 | |
| | (3) | | | | | Répéter les étapes (1) et (2) | | | |
| 4 | (1) | MPX FM (Multiplex) | • Fréquencemétre | Brancher un condensateur électrolytique de 10μF/25V entre la broche n° 1 du IC301 et la masse (GND). | TP. 4 (Broche n° 6 du IC301) | — | — | R300 | 38 kHz ± 50 Hz (Remarque 7) |

Remarque:

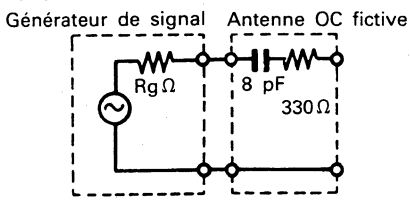
1. Appliquer un signal faible du généscope. Régler T201 et T203 afin d'obtenir un gain maximum et la forme d'onde de la Fig. 10.




Régler la sortie du généscope de façon à ce qu'il y ait un peu de bruit au niveau du front d'onde.

**Fig. 10**

2. Antenne OC fictive




Rg : impédance de sortie du générateur de signal

**Fig. 11**

3. Relier le générateur de signal AM à l'antenne-cadre. La rapprocher de l'antenne noyau en ferrite.
4. Appliquer un signal faible du généscope sur TP2. Régler T101 afin d'obtenir un gain maximum et la forme d'onde de la Fig. 12. Si le centre de la forme d'onde ne peut pas être aligné sur le marqueur, régler la balance droite/gauche.

Régler la sortie du généscope de façon à ce qu'il y ait un peu de bruit au niveau du front d'onde.

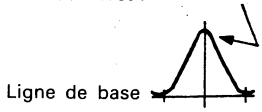



**Fig. 12**

5. Utiliser le noyau de T202 pour former la courbe-S indiquée sur la Fig. 13. Régler la symétrie de A et B au niveau du point C pour la linéarité.

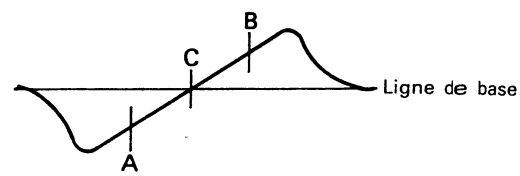
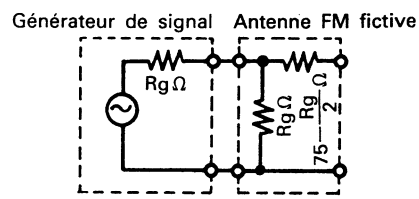



**Fig. 13**

6. Antenne FM fictive




Rg : impédance de sortie du générateur de signal

**Fig. 14**

7. Relier le fréquencemètre sur la broche n°6 du IC301 et brancher une résistance de 330 kΩ en parallèle avec le fréquencemètre.

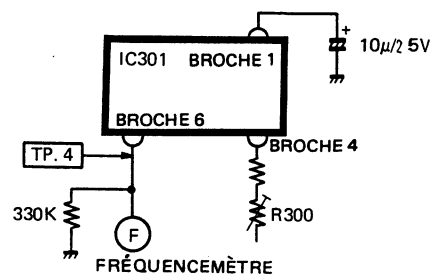
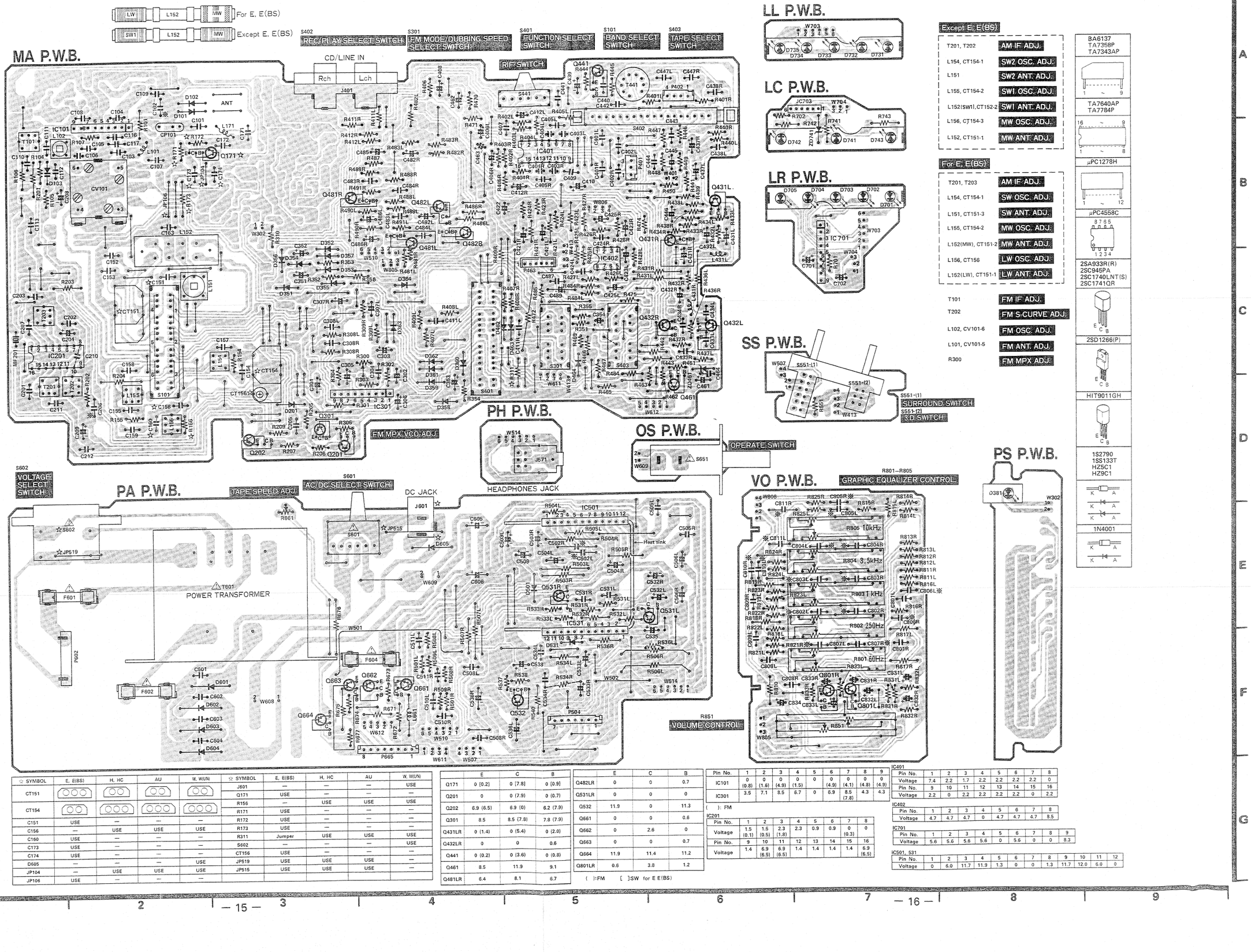



**Fig. 15**

# PRINTED WIRING BOARD · PLAN DE BASE

※ : Axial lead cylindrical ceramic capacitor.
※ : Condensateur céramique clindrique à conducteur axial.




| ☆ SYMBOL | E, E(BS) | H, HC | AU | W, W(UN) |
|---|---|---|---|---|
| CT151 | | | | |
| CT154 | | | | |
| C151 | USE | — | — | — |
| C156 | — | USE | USE | USE |
| C160 | USE | — | — | — |
| C173 | USE | — | — | — |
| C174 | USE | — | — | — |
| D605 | — | — | — | USE |
| JP104 | — | USE | USE | USE |
| JP106 | USE | — | — | — |

| ☆ SYMBOL | E, E(BS) | H, HC | AU | W, W(UN) |
|---|---|---|---|---|
| J601 | — | — | — | USE |
| Q171 | USE | — | — | — |
| R155 | — | USE | USE | USE |
| R171 | USE | — | — | — |
| R172 | USE | — | — | — |
| R173 | USE | — | — | — |
| R311 | Jumper | USE | USE | USE |
| S602 | — | — | — | USE |
| CT156 | USE | — | — | — |
| JP519 | USE | USE | USE | — |
| JP515 | USE | USE | USE | — |

| | E | C | B |
|---|---|---|---|
| Q171 | 0 [0.2] | 0 [7.8] | 0 [0.9] |
| Q201 | 0 | 0 (7.9) | 0 (0.7) |
| Q202 | 6.9 (6.5) | 6.9 (0) | 6.2 (7.9) |
| Q301 | 8.5 | 8.5 (7.8) | 7.8 (7.9) |
| Q431LR | 0 (1.4) | 0 (5.4) | 0 (2.0) |
| Q432LR | 0 | 0 | 0.6 |
| Q441 | 0 (0.2) | 0 (3.6) | 0 (0.8) |
| Q461 | 8.5 | 11.9 | 9.1 |
| Q481LR | 6.4 | 8.1 | 6.7 |

| | E | C | B |
|---|---|---|---|
| Q482LR | 0 | 0 | 0.7 |
| Q531LR | 0 | 0 | 0 |
| Q532 | 11.9 | 0 | 11.3 |
| Q661 | 0 | 0 | 0.6 |
| Q662 | 0 | 2.6 | 0 |
| Q663 | 0 | 0 | 0.7 |
| Q664 | 11.9 | 11.4 | 11.2 |
| Q801LR | 0.6 | 3.8 | 1.2 |

( ):FM [ ]:SW for E E(BS)

| Pin No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| IC101 | 0 (0.8) | 0 (1.6) | 0 (4.9) | 0 (1.5) | 0 | 0 (4.9) | 0 (4.1) | 0 (4.8) | 0 (4.9) |
| IC301 | 3.5 | 7.1 | 8.5 | 6.7 | 0 | 6.9 | 8.5 (7.8) | 4.3 | 4.3 |

( ): FM

IC201

| Pin No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Voltage | 1.5 (0.1) | 1.5 (0.5) | 2.3 (1.8) | 2.3 | 0.9 | 0.9 | 0 (0.3) | 0 |
| Pin No. | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Voltage | 1.4 | 6.9 (6.5) | 6.9 (6.5) | 1.4 | 1.4 | 1.4 | 1.4 | 6.9 (6.5) |

IC401

| Pin No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Voltage | 7.4 | 2.2 | 1.7 | 2.2 | 2.2 | 2.2 | 2.2 | 0 | |
| Pin No. | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |
| Voltage | 2.2 | 0 | 2.2 | 2.2 | 2.2 | 2.2 | 0 | 2.2 | |

IC402

| Pin No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Voltage | 4.7 | 4.7 | 4.7 | 0 | 4.7 | 4.7 | 4.7 | 8.5 |

IC701

| Pin No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Voltage | 5.6 | 5.6 | 5.6 | 5.6 | 0 | 5.6 | 0 | 0 | 8.3 |

IC501, 531

| Pin No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Voltage | 0 | 6.0 | 11.7 | 11.9 | 1.3 | 0 | 0 | 1.3 | 11.7 | 12.0 | 6.0 | 0 |

## 2. SECTION LECTEUR-ENREGISTREUR DE CASSETTE

Effectuer les réglages suivants dans l'ordre indiqué après avoir nettoyé la tête, le galet-presseur et le cabestan avec un coton-tige imbibé d'alcool. (Remarque 1)

| Etape | Objet de réglage | Instrument de mesure et branchements | | | Band de vérification | Mode | Réglage | Lecture |
|---|---|---|---|---|---|---|---|---|
| | | Instrument de mesure | Borne d'entrée | Borne de sortie | | | | |
| 1 | Vitesse de défilement (Remarque 3) | • Fréquence-mètre | — | Jack casque | Bande de réglage de vitesse de défilement (3 kHz) | Reproduction (Platine 2) | R611 | 3 kHz ± 20 Hz (Remarque 2) |
| 2 | Azimuth de tête | • VTVM | — | Jack casque | Bande de réglage d'azimuth de tête (10 kHz) | Reproduction | Vis de réglage d'azimuth Fig. 16 | Sortie max. (Remarque 4) |

Remarque :

1. Régler dans une plage de 30 sec. après une mise sous tension de 20 minutes au moins.
2. Vérifier la Platine 1 à la fois dans les directions FORWARD (avant) et REVERSE (arrière). Si la lecture est en dehors de la plage des valeurs de réglage, faire le réglage de façon à ce que la lecture soit entre 2975 et 3030 Hz dans les directions FORWARD (avant) et REVERSE (arrière). (Il n'est pas possible d'effectuer la commutation du sens de défilement FORWARD(avant) / REVERSE(arrière) avec E ou E(BS). Utiliser cette commande pour le fonctionement dans un seul sens de défilement.)
3. Le réglage à haute vitesse n'est pas nécessaire.
4. Si les valeurs maximales des deux canaux différent, régler sur la valeur maximale du canal de gauche (L). Dans ce cas, la différence entre les valeurs maximales des deux canaux doit être comprise dans une plage de 2 dB.

(Vérifier dans la direction REVERSE (arrière) sur la Platine 1. Si vous réglage et Platine 1, Il n'est pas possible d'effectuer la commutation du sens de défilement FORWARD (avant)/REVERSE (arrière) avec E ou E(BS). Utiliser cette commande pour le fonctionnement dans un seul sens de défilement.)

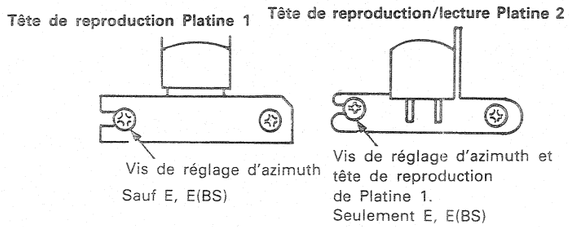

Tête de reproduction Platine 1
Tête de reproduction/lecture Platine 2
Vis de réglage d'azimuth
Sauf E, E(BS)
Vis de réglage d'azimuth et tête de reproduction de Platine 1.
Seulement E, E(BS)

Fig. 16

## 3. Réglage du châssis de cassette

| No. | Point d'inspection | Valeur de référence | Observation |
|---|---|---|---|
| 1 | Couple en lecture | TN-521: De 27 à 60 g·cm | |
| | | TN-21: De 30 à 60 g·cm | |
| 2 | Couple avance rapide /rebobinage | TN-521: De 55 à 120 g·cm | |
| | | TN-21: De 55 à 120 g·cm | |
| 3 | Tension bobine débitrice | TN-521: De 1,8 à 5,0 g·cm | |
| | | TN-21: De 1 à 4 g·cm | |
| 4 | Force de défilement de band | TN-521: Plus de 50 g (TAPE 1) Plus de 100 g (TAPE 2) | |
| | | TN-21: Plus de 100 g | |



## LUBRIFICATION

Appliquer une ou deux gouttes d'huile moteur ou d'huile Sonic pour curseur, sur les membres rotatifs. De la graisse Molycoat (EL-10M) est appliquée sur les membres coulissants.
Lubrifier une fois par an ou toutes les 1 000 heures de fonctionnement.
Veiller à ne pas appliquer d'huile sur les courroies ou les galets.

| | | |
|---|---|---|
| Membres rotatifs | Entre les parties métalliques | Huile moteur (10W-40) |
| | Entre le moulage et les parties métalliques | Huile Sonic pour curseur (#1600) |
| Membres coulissants | (Remarque) Entre moulures Entre moulures et piéces métalliques | Molycoat (EL-10M) |
| Prévention de vibration de ressort | | Floyl (GB-TS-1) |

Remarque:
Lorsque le châssis avant et le bouton curseur doivent être remplacés, appliquer une couche légère de graisse blanche sur les parties de contact.

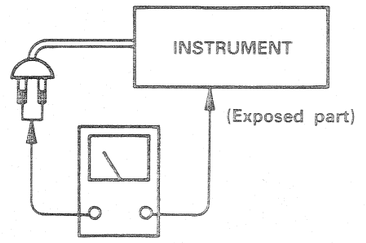
## ENTRETIEN

**■ Nettoyage du coffret et des panneaux lorsqu'ils sont sales**

Enlever la poussière des surfaces de l'appareil avec un chiffon sec. Ne jamais utiliser de solvants, de benzine ou d'alcool car ils abîmeraient le fini des surfaces.

Check that exposed parts are acceptably insulated from the supply circuit before returning the instrument repaired to the customer.

● **Checking method**
Operate switch is set to ON.
Next, measure the resistance value between the both poles of attachment cup (Power supply plug) and the exposed parts (Parts such as Knob, Cover, etc. where the customer is easy to touch.) and check that the resistance value is 500 kohms or more.

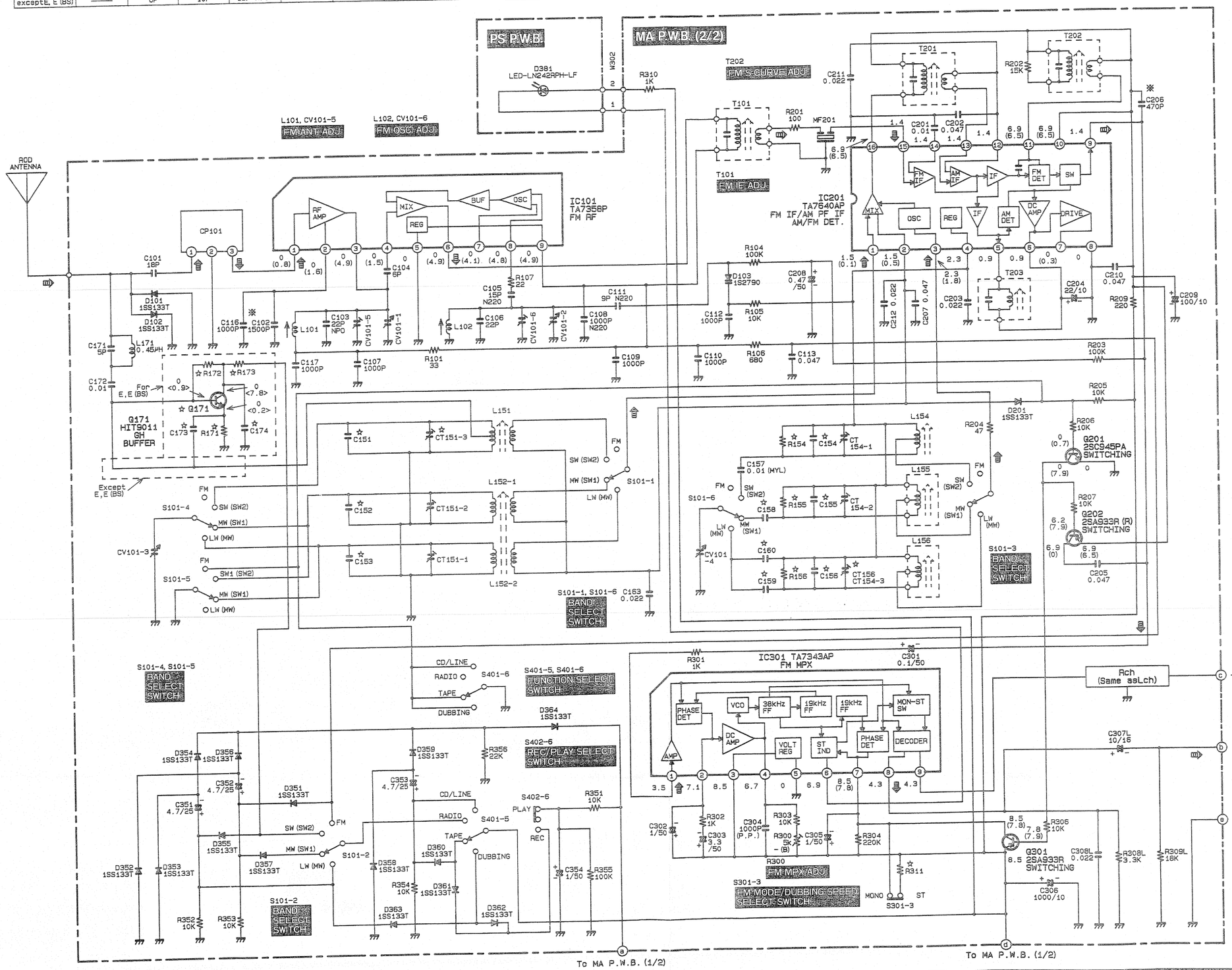



Insulation tester (DC 500V)

# CIRCUIT DIAGRAM · PLAN DE CIRCUIT

※ : Axial lead cylindrical ceramic capacitor.
※ : Condensateur céramique clindrique à conducteur axial.

| ☆No. | C151 | C152 | C153 | C154 | C155 | C156 | C158 | C159 | C160 | C173 | C174 | R154 | R155 | R156 | R171 | R172 | R173 | R311 | Q171 | CT151-3 | CT154-3, CT156 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E,E (BS) | 12P | 10P | 82P | 22P NPO | 18P | —— | 360P (P.P.) | 180P (STY) | 120P | 0.01 | 0.022 | 18K | 18K | —— | 100 | 330K | 390 | Jumper | Use | Use | CT156 |
| exceptE, E (BS) | —— | 6P | 10P | 15P N750 | 8P | 12P | 1500P (P.P.) | 360P (P.P.) | —— | —— | —— | 22K | 15K | 15K | —— | —— | —— | 1K | —— | —— | CT154-3 |




SIGNAL CURRENT
: AUDIO SIGNAL
S101 BAND SELECT SWITCH
ForE, E (BS) FM-SW-MW-LW
ExceptE, E (BS) FM-SW2-SW1-MW

( ): FM
< >: SW forE, E (BS)

For E, E (BS)

T201, T203 AM IF ADJ.
L154, CT154-1 SW OSC ADJ.
L151, CT151-3 SW ANT ADJ.
L155, CT154-2 MW OSC ADJ.
L152 (MW), CT151-2 MW ANT ADJ.
L156, CT156 LW OSC ADJ.
L152 (LW), CT151-1 LW ANT ADJ.

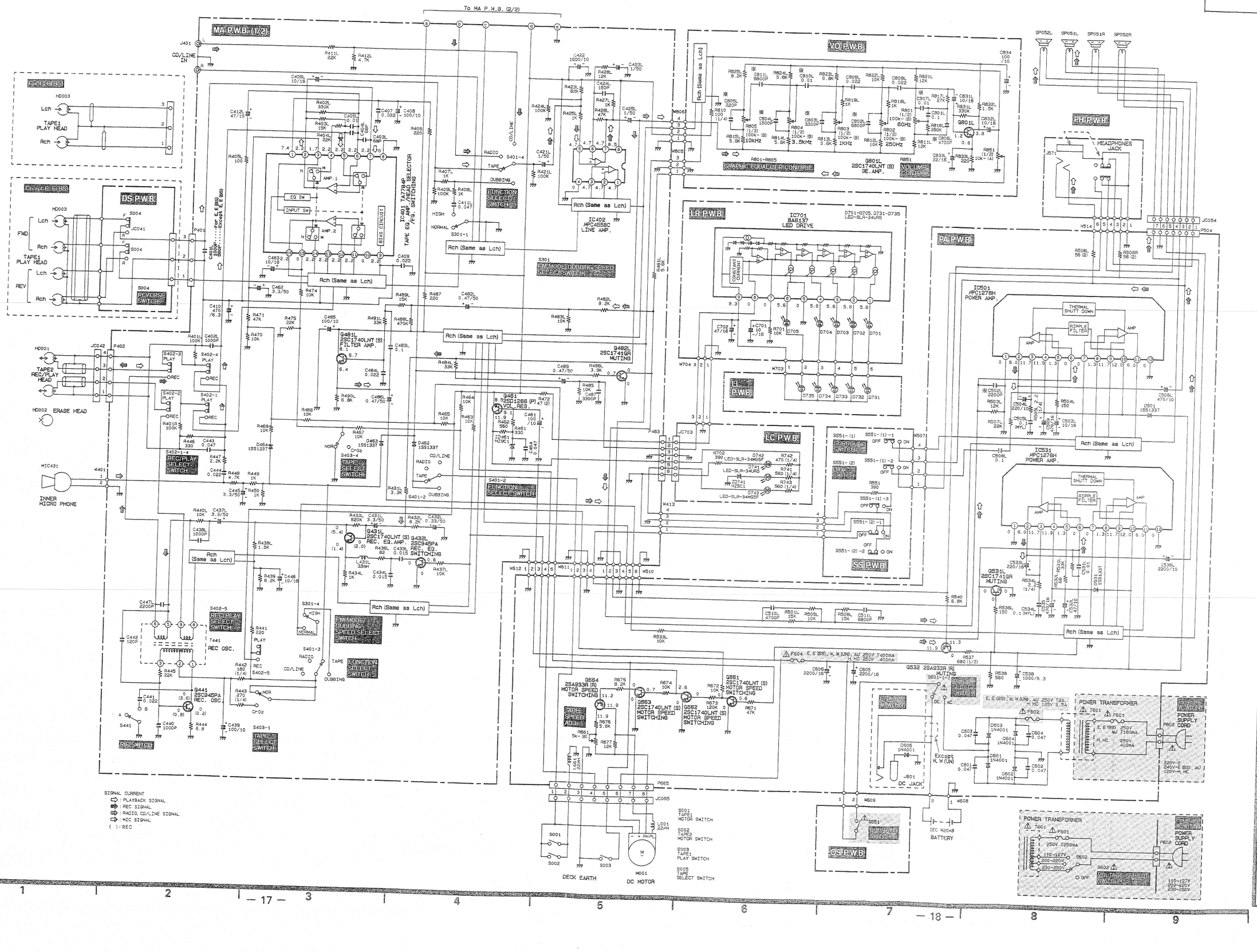
Except E, E (BS)

T201, T203 AM IF ADJ.
L154, CT154-1 SW2 OSC ADJ.
L151 SW2 ANT ADJ.
L155, CT154-2 SW1 OSC ADJ.
L152 (SW1), CT152-2 SW1 ANT ADJ.
L156, CT154-3 MW OSC ADJ.
L152 (MW), CT151-1 MW ANT ADJ.

# CIRCUIT DIAGRAM · PLAN DE CIRCUIT

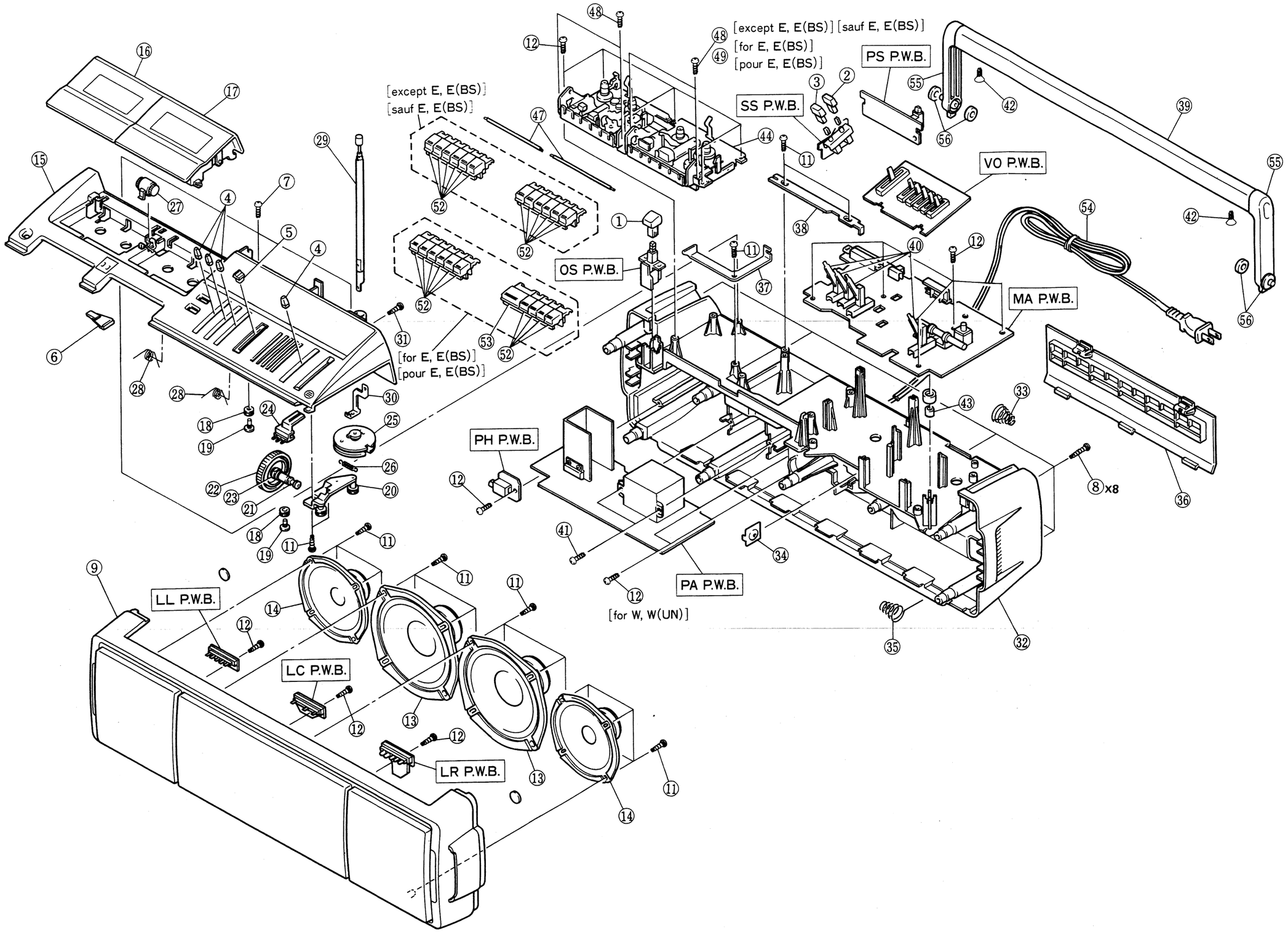
※ : Axial lead cylindrical ceramic capacitor.
※ : Condensateur céramique clindrique à conducteur axial.





## *EXPLODED VIEW (Cabinet)* *VUE EXPLOSEE (Coffret)*

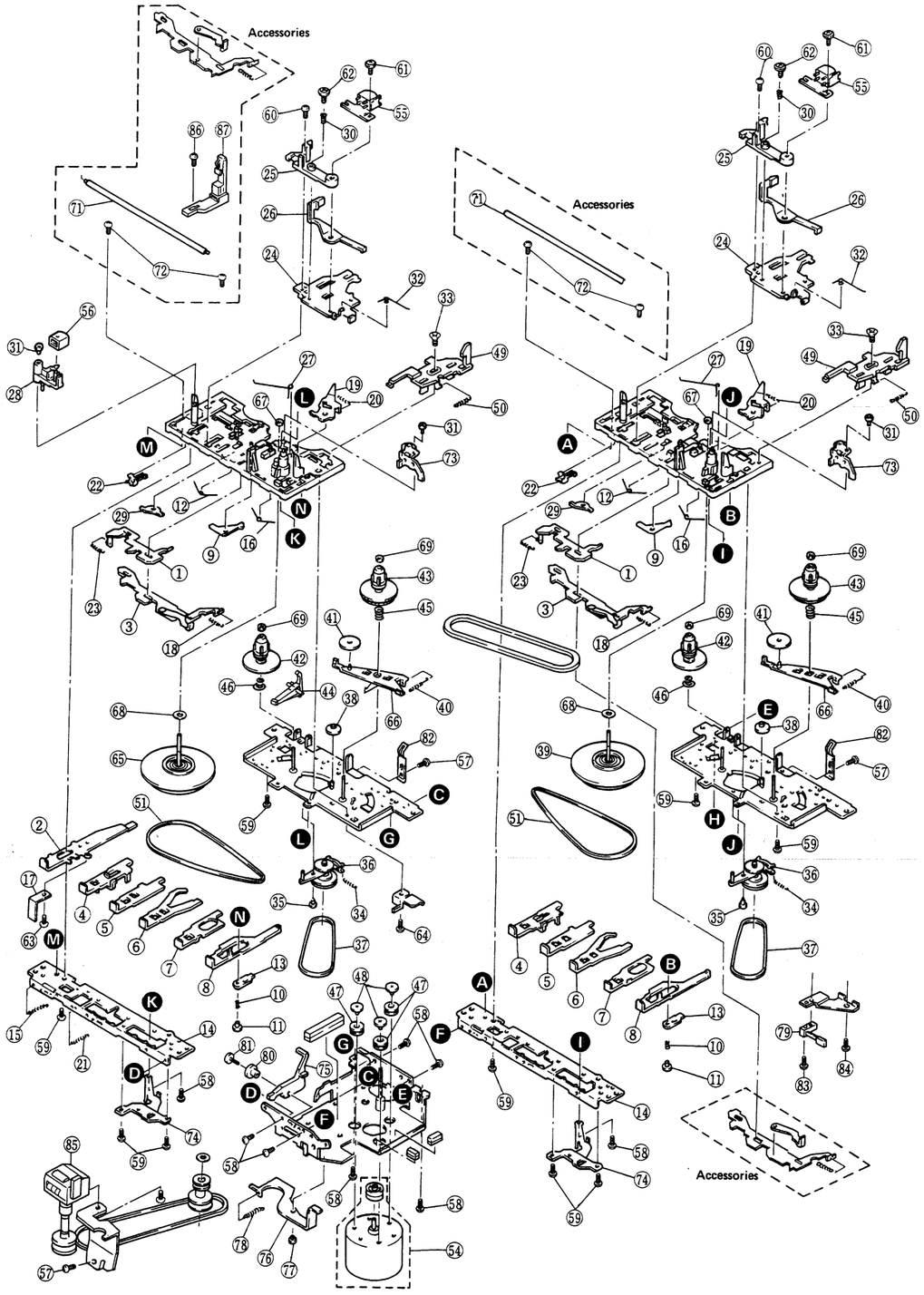
- Nos. are reference Nos. of parts list.
- Ces numéros correspondent à la liste des pièces.



## EXPLODED VIEW VUE EXPLOSEE [for E, E(BS)]
## (Cassette Chasis) (Châssis de Cassette) [pour E, E(BS)]

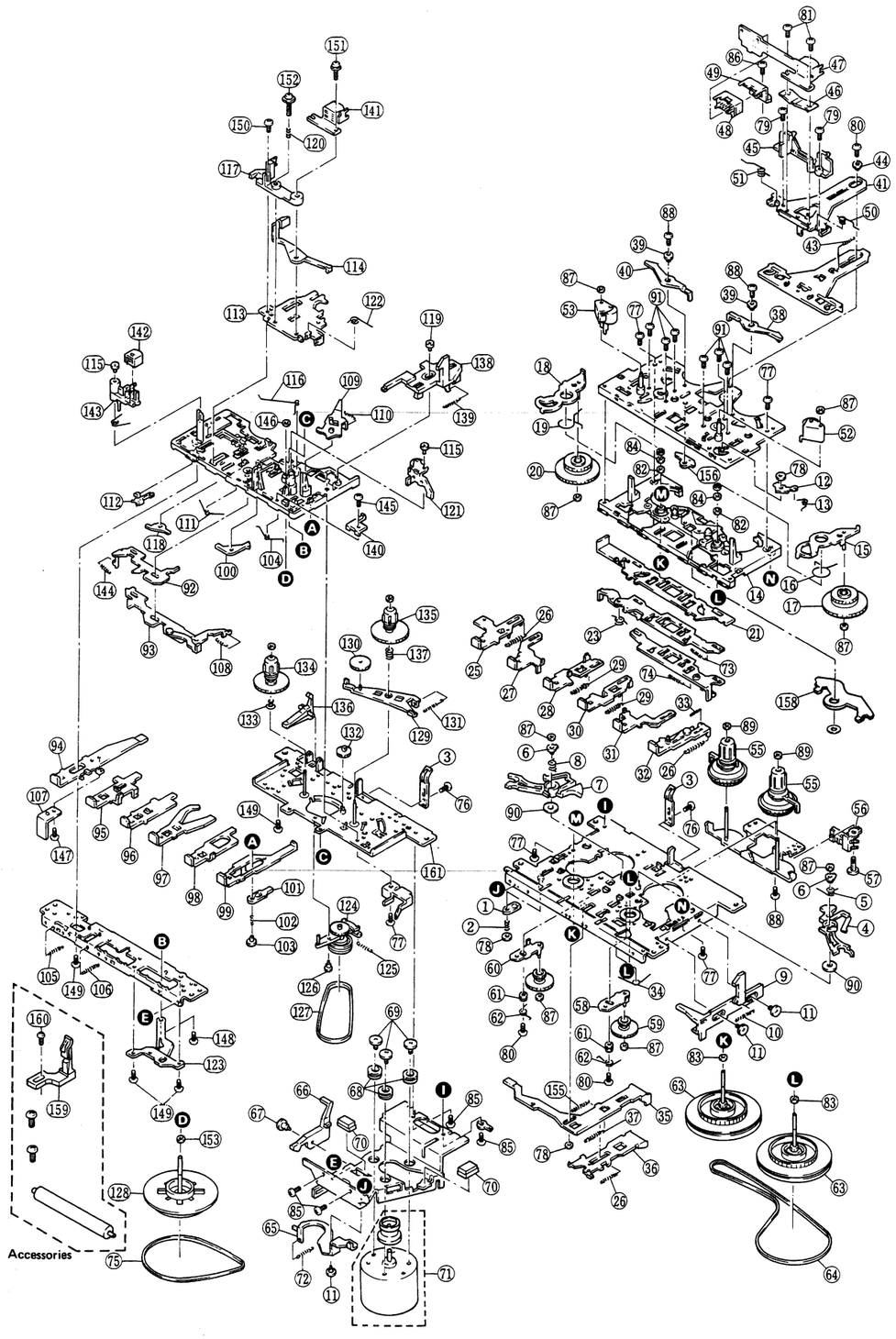
TRK-3D80 TRK-3D80

- Nos. are reference Nos. of parts list.
- Ces numéros correspondent à la liste des pièces.




## EXPLODED VIEW VUE EXPLOSEE [except E, E(BS)]
## (Cassette Chasis) (Châssis de Cassette) [sauf E, E(BS)]

- Nos. are reference Nos. of parts list.
- Ces numéros correspondent à la liste des pièces.



# REPLACEMENT PARTS LIST · TABLEAU DES PIÈCES

CC: Cylindrical ceramic MO: Metal oxide
CD: Ceramic discal MF: Mylar film
CF: Carbon film ST: Styrol
EL: Electrolytic PP: Polypro-pylene

| SYMBOL No. | PART No. | DESCRIPTION |
|---|---|---|
| | | CAPACITORS |
| C101 | 0208666 | CD 18PF ±5% 50V |
| C102 | 0240051 | CC 1500PF ±20% 16V |
| C103 | 0246448 | CD 22PF ±5% 50V |
| C104 | 0248646 | CD 6PF ±0.25PF 50V |
| C105 | 0248034 | CD 15PF ±5% 50V |
| C106 | 0248038 | CD 22PF ±5% 50V |
| C107 | 02441012 | CD 1000PF ±10% 50V |
| C108 | 02441012 | CD 1000PF ±10% 50V |
| C109 | 02441012 | CD 1000PF ±10% 50V |
| C110 | 02441012 | CD 1000PF ±10% 50V |
| C111 | 0248019 | CD 9PF ±0.5PF 50V |
| C112 | 02441012 | CD 1000PF ±10% 50V |
| C113 | 0209175 | CD 0.047 μF +80 −20% 50V |
| C116 | 02441012 | CD 1000PF ±10% 50V |
| C117 | 02441012 | CD 1000PF ±10% 50V |
| C151 | 0208662 | CD 12PF ±5% 50V [for E, E(BS)] |
| C152 | 0208646 | CD 6PF ±0.5PF 50V [except E, E(BS)] |
| | 0208650 | CD 10PF ±0.5PF 50V [for E, E(BS)] |
| C153 | 0208650 | CD 10PF ±0.5PF 50V [except E, E(BS)] |
| | 0208682 | CD 82PF ±5% 50V [for E, E(BS)] |
| C154 | 0246448 | CD 22PF ±5% 50V [for E, E(BS)] |
| | 0248494 | CD 15PF ±5% 50V [except E, E(BS)] |
| C155 | 0208648 | CD 8PF ±0.5PF 50V [except E, E(BS)] |
| | 0208666 | CD 18PF ±5% 50V [for E, E(BS)] |
| C156 | 0208662 | CD 12PF ±5% 50V [except E, E(BS)] |
| C157 | 02750112 | MF 0.01 μF ±10% 50V |
| C158 | 0268321 | PP 360PF ±5% 100V [for E, E(BS)] |
| | 0268442 | PP 1500PF ±5% 100V [except E, E(BS)] |
| C159 | 0268321 | PP 360PF ±5% 100V [except E, E(BS)] |
| | 1221391 | ST 180PF ±5% 50V [for E, E(BS)] |
| C160 | 0208686 | CD 120PF ±5% 50V [for E, E(BS)] |
| C163 | 0244173 | CD 0.022 μF +80 −20% 50V |
| C171 | 0208635 | CD 5PF ±0.25PF 50V |
| C172 | 0244171 | CD 0.01 μF +80 −20% 50V |
| C173 | 0244171 | CD 0.01 μF +80 −20% 50V [for E, E(BS)] |
| C174 | 0244173 | CD 0.022 μF +80 −20% 50V [for E, E(BS)] |
| C201 | 0244171 | CD 0.01 μF +80 −20% 50V |
| C202 | 0244175 | CD 0.047 μF +80 −20% 50V |
| C203 | 0244173 | CD 0.022 μF +80 −20% 50V |
| C204 | 02523222 | EL 22 μF 10V |
| C205 | 0240220 | CD 0.047 μF ±10% 25V |
| C206 | 0240041 | CC 470PF ±10% 50V |
| C207 | 0240220 | CD 0.047 μF ±10% 25V |
| C208 | 02528052 | EL 0.47 μF 50V |
| C209 | 02523312 | EL 100 μF 10V |
| C210 | 0209175 | CD 0.047 μF +80 −20% 50V |
| C211 | 0244173 | CD 0.022 μF +80 −20% 50V |
| C212 | 0244173 | CD 0.022 μF +80 −20% 50V |
| C301 | 02528012 | EL 0.1 μF 50V |
| C302 | 02528112 | EL 1 μF 50V |
| C303 | 02528132 | EL 3.3 μF 50V |
| C304 | 0268446 | PP 1000PF ±5% 100V |
| C305 | 02528112 | EL 1 μF 50V |
| C306 | 02523412 | EL 1000 μF 10V |
| C307LR | 02525212 | EL 10 μF 16V |
| C308LR | 0240216 | CD 0.022 μF ±10% 25V |
| C351 | 02526152 | EL 4.7 μF 25V |
| C352 | 02526152 | EL 4.7 μF 25V |
| C353 | 02526152 | EL 4.7 μF 25V |
| C354 | 02528112 | EL 1 μF 50V |
| C401LR | 0209724 | CD 560PF ±10% 50V [except E, E(BS)] |
| | 0209731 | CD 1000PF ±10% 50V [for E, E(BS)] |
| C402LR | 0209731 | CD 1000PF ±10% 50V |
| C403LR | 0248680 | CD 68PF ±5% 50V |
| C404LR | 0248680 | CD 68PF ±5% 50V |
| C405LR | 0240212 | CD 0.01 μF ±10% 25V |
| C406LR | 02525212 | EL 10 μF 16V |
| C407 | 0244173 | CD 0.022 μF +80 −20% 50V |
| C408 | 02523312 | EL 100 μF 10V |
| C409 | 0244173 | CD 0.022 μF +80 −20% 50V |
| C410 | 02522352 | EL 470 μF 6.3V |
| C411LR | 0240220 | CD 0.047 μF ±10% 25V |
| C412LR | 02523252 | EL 47 μF 10V |
| C421LR | 02528112 | EL 1 μF 50V |
| C422 | 02523412 | EL 1000 μF 10V |
| C423LR | 02528112 | EL 1 μF 50V |
| C424LR | 0248688 | CD 150PF ±5% 50V |
| C425LR | 02528112 | EL 1 μF 50V |
| C431LR | 02528132 | EL 3.3 μF 50V |
| C432LR | 02528032 | EL 0.33 μF 50V |
| C433LR | 0240214 | CD 0.015 μF ±10% 25V |
| C434LR | 0240214 | CD 0.015 μF ±10% 25V |
| C437LR | 02528132 | EL 3.3 μF 50V |
| C438LR | 0209731 | CD 1000PF ±10% 50V |
| C439 | 02523312 | EL 100 μF 10V |
| C440 | 0209731 | CD 1000PF ±10% 50V |
| C441 | 0240216 | CD 0.022 μF ±10% 25V |
| C442 | 0208686 | CD 120PF ±5% 50V |
| C443 | 0240220 | CD 0.047 μF ±10% 25V |
| C444 | 0240216 | CD 0.022 μF ±10% 25V |
| C445 | 02528132 | EL 3.3 μF 50V |
| C446 | 02525212 | EL 10 μF 16V |
| C447LR | 0209733 | CD 2200PF ±10% 50V |
| C461 | 02523312 | EL 100 μF 10V |
| C462 | 02528132 | EL 3.3 μF 50V |
| C463 | 02525212 | EL 10 μF 16V |
| C464 | 0244175 | CD 0.047 μF +80 −20% 50V |
| C482LR | 02528052 | EL 0.47 μF 50V |
| C483LR | 0240224 | CD 0.1 μF ±10% 25V |
| C484LR | 0240216 | CD 0.022 μF ±10% 25V |
| C485 | 02523312 | EL 100 μF 10V |
| C486LR | 02528052 | EL 0.47 μF 50V |
| C487 | 0209734 | CD 3300PF ±10% 50V |
| C489 | 02528052 | EL 0.47 μF 50V |
| C502LR | 0240053 | CC 2200PF ±20% 16V |
| C503LR | 02525212 | EL 10 μF 16V |
| C504LR | 02523322 | EL 220 μF 10V |
| C505LR | 02760112 | MF 0.1 μF 50V |
| C506LR | 0252335 | EL 470 μF 10V |
| C508LR | 0240224 | CD 0.1 μF ±10% 25V |
| C509 | 02525352 | EL 470 μF 10V |
| C510LR | 0244109 | CD 4700PF ±10% 50V |
| C511LR | 0209736 | CD 6800PF ±10% 50V |
| C531LR | 0209761 | CD 0.01 μF ±20% 25V |
| C532LR | 02523252 | EL 47 μF 10V |
| C533LR | 02525322 | EL 220 μF 16V |
| C534LR | 02760112 | MF 0.1 μF ±10% 50V |
| C535 | 02525352 | EL 470 μF 16V |
| C536LR | 02523422 | EL 2200 μF 10V |
| C538 | 0252241 | EL 1000 μF 6.3V |
| C601 | 0209175 | CD 0.047 μF +80 −20% 50V |
| C602 | 0209175 | CD 0.047 μF +80 −20% 50V |
| C603 | 0209175 | CD 0.047 μF +80 −20% 50V |
| C604 | 0209175 | CD 0.047 μF +80 −20% 50V |
| C605 | 02525422 | EL 2200 μF 16V |
| C606 | 02525422 | EL 2200 μF 16V |
| C701 | 02525212 | EL 10 μF 16V |
| C702 | 02525252 | EL 47 μF 16V |
| C801LR | 0240224 | CD 0.1 μF ±10% 25V |
| C802LR | 0240059 | CC 6800PF ±30% 16V |
| C803LR | 0240055 | CC 3300PF ±20% 16V |
| C804LR | 0240051 | CC 1500PF ±20% 16V |
| C805LR | 0240037 | CC 220PF ±10% 50V |
| C806LR | 0240057 | CC 4700PF ±30% 16V |
| C807LR | 0240061 | CC 0.01 μF ±30% 16V |
| C808LR | 0240216 | CD 0.022 μF ±10% 25V |
| C809LR | 0240216 | CD 0.022 μF ±10% 25V |
| C810LR | 0240061 | CC 0.01 μF ±30% 16V |
| C811LR | 0240059 | CC 6800PF ±30% 16V |
| C831LR | 02522512 | EL 10 μF 16V |
| C832LR | 02522512 | EL 10 μF 16V |
| C833LR | 02522772 | EL 22 μF 16V |
| C834 | 02522642 | EL 100 μF 10V |
| | | RESISTORS |
| R101 | 0113579 | CF 33Ω ±5% SRD1/6P |
| R104 | 0113663 | CF 100KΩ ±5% SRD1/6P |
| R105 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R106 | 0113611 | CF 680Ω ±5% SRD1/6P |
| R107 | 0113575 | CF 22Ω ±5% SRD1/6P |
| R154 | 0113645 | CF 18KΩ ±5% SRD1/6P [for E, E(BS)] |
| | 0113647 | CF 22KΩ ±5% SRD1/6P [except E, E(BS)] |
| R155 | 0113645 | CF 18KΩ ±5% SRD1/6P [for E, E(BS)] |
| | 0113643 | CF 15KΩ ±5% SRD1/6P [except E, E(BS)] |
| R156 | 0113643 | CF 15KΩ ±5% SRD1/6P [except E, E(BS)] |
| R171 | 0113591 | CF 100Ω ±5% SRD1/6P [for E, E(BS)] |
| R172 | 0113675 | CF 330KΩ ±5% SRD1/6P [for E, E(BS)] |

| SYMBOL No. | PART No. | DESCRIPTION |
|---|---|---|
| R173 | 0113605 | CF 390Ω ±5% SRD1/6P [for E, E(BS)] |
| R201 | 0113591 | CF 100Ω ±5% SRD1/6P |
| R202 | 0113643 | CF 15KΩ ±5% SRD1/6P |
| R203 | 0113663 | CF 100KΩ ±5% SRD1/6P |
| R204 | 0113583 | CF 47Ω ±5% SRD1/6P |
| R205 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R206 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R207 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R209 | 0113599 | CF 220Ω ±5% SRD1/6P |
| R301 | 0113615 | CF 1KΩ ±5% SRD1/6P |
| R302 | 0113615 | CF 1KΩ ±5% SRD1/6P |
| R303 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R304 | 0113671 | CF 220KΩ ±5% SRD1/6P |
| R306 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R308LR | 0113627 | CF 3.3KΩ ±5% SRD1/6P |
| R309LR | 0113645 | CF 18KΩ ±5% SRD1/6P |
| R310 | 0113615 | CF 1KΩ ±5% SRD1/6P |
| R311 | 0113615 | CF 1KΩ ±5% SRD1/6P [except E, E(BS)] |
| R351 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R352 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R353 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R354 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R355 | 0113663 | CF 100KΩ ±5% SRD1/6P |
| R356 | 0113647 | CF 22KΩ ±5% SRD1/6P |
| R401LR | 0113663 | CF 100KΩ ±5% SRD1/6P |
| R402LR | 0113675 | CF 330KΩ ±5% SRD1/6P |
| R403LR | 0113643 | CF 15KΩ ±5% SRD1/6P |
| R404LR | 0113647 | CF 22KΩ ±5% SRD1/6P |
| R405LR | 0113591 | CF 100Ω ±5% SRD1/6P |
| R406 | 0113599 | CF 220Ω ±5% SRD1/6P |
| R407LR | 0113615 | CF 1KΩ ±5% SRD1/6P |
| R408LR | 0113615 | CF 1KΩ ±5% SRD1/6P |
| R409LR | 0113663 | CF 100KΩ ±5% SRD1/6P |
| R411LR | 0113647 | CF 22KΩ ±5% SRD1/6P |
| R412LR | 0113631 | CF 4.7KΩ ±5% SRD1/6P |
| R421LR | 0113663 | CF 100KΩ ±5% SRD1/6P |
| R423LR | 0113661 | CF 82KΩ ±5% SRD1/6P |
| R424LR | 0113663 | CF 100KΩ ±5% SRD1/6P |
| R425LR | 0113615 | CF 1KΩ ±5% SRD1/6P |
| R426LR | 0113655 | CF 47KΩ ±5% SRD1/6P |
| R427LR | 0113615 | CF 1KΩ ±5% SRD1/6P |
| R428LR | 0113641 | CF 12KΩ ±5% SRD1/6P |
| R431LR | 0113627 | CF 3.3KΩ ±5% SRD1/6P |
| R432LR | 0113637 | CF 8.2KΩ ±5% SRD1/6P |
| R433LR | 01136852 | CF 820KΩ ±5% SRD1/6P |
| R434LR | 0113615 | CF 1KΩ ±5% SRD1/6P |
| R436LR | 0113589 | CF 82Ω ±5% SRD1/6P |
| R437LR | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R438LR | 0113619 | CF 1.5KΩ ±5% SRD1/6P |
| R439 | 0113637 | CF 8.2KΩ ±5% SRD1/6P |
| R440LR | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R441 | 0113599 | CF 220Ω ±5% SRD1/6P |
| R442 | 0129567 | CF 180Ω ±5% SRD1/4P |
| R443 | 0129571 | CF 270Ω ±5% SRD1/4P |
| R444 | 0113563 | CF 6.8Ω ±5% SRD1/6P |
| R445 | 0113647 | CF 22KΩ ±5% SRD1/6P |
| R446 | 0113603 | CF 330Ω ±5% SRD1/6P |
| R447 | 0113623 | CF 2.2KΩ ±5% SRD1/6P |
| R448 | 0113631 | CF 4.7KΩ ±5% SRD1/6P |

| SYMBOL No. | PART No. | DESCRIPTION |
|---|---|---|
| R449 | 0113615 | CF 1KΩ ±5% SRD1/6P |
| R450 | 0113615 | CF 1KΩ ±5% SRD1/6P |
| R461 | 0113603 | CF 330Ω ±5% SRD1/6P |
| R462 | 0113609 | CF 560Ω ±5% SRD1/6P |
| R463 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R464 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R465 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R466 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R467 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R469 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R470 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R471 | 0113655 | CF 47KΩ ±5% SRD1/6P |
| R472 | 1119509 | MO 47Ω ±10% RS2B |
| R474 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R475 | 0113647 | CF 22KΩ ±5% SRD1/6P |
| R481LR | 0113633 | CF 5.6KΩ ±5% SRD1/6P |
| R482LR | 0113637 | CF 8.2KΩ ±5% SRD1/6P |
| R483LR | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R484LR | 0113651 | CF 33KΩ ±5% SRD1/6P |
| R485 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R486LR | 0113629 | CF 3.9KΩ ±5% SRD1/6P |
| R487 | 0113599 | CF 220Ω ±5% SRD1/6P |
| R488LR | 0113679 | CF 470KΩ ±5% SRD1/6P |
| R489LR | 0113643 | CF 15KΩ ±5% SRD1/6P |
| R490LR | 0113635 | CF 6.8KΩ ±5% SRD1/6P |
| R491LR | 0113651 | CF 33KΩ ±5% SRD1/6P |
| R501LR | 0113643 | CF 15KΩ ±5% SRD1/6P |
| R503LR | 0113641 | CF 12KΩ ±5% SRD1/6P |
| R504LR | 0113595 | CF 150Ω ±5% SRD1/6P |
| R505LR | 0129509 | CF 2.2Ω ±5% SRD1/4P |
| R506LR | 1119510 | MO 56Ω ±10% RS2B |
| R507LR | 0113647 | CF 22KΩ ±5% SRD1/6P |
| R508LR | 0113643 | CF 15KΩ ±5% SRD1/6P |
| R509LR | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R531LR | 0113651 | CF 33KΩ ±5% SRD1/6P |
| R532LR | 0113587 | CF 68Ω ±5% SRD1/6P |
| R533LR | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R534LR | 0129509 | CF 2.2Ω ±5% SRD1/4P |
| R536LR | 0113595 | CF 150Ω ±5% SRD1/6P |
| R537 | 0113297 | CF 680Ω ±5% SRD1/2P |
| R538 | 0113609 | CF 560Ω ±5% SRD1/6P |
| R540 | 0113635 | CF 6.8kΩ ±5% SRD1/6P |
| R551 | 0113605 | CF 390Ω ±5% SRD1/6P |
| R671 | 0113655 | CF 47KΩ ±5% SRD1/6P |
| R672 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R673 | 0113665 | CF 120KΩ ±5% SRD1/6P |
| R674 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R675 | 0113637 | CF 8.2KΩ ±5% SRD1/6P |
| R676 | 0113633 | CF 5.6KΩ ±5% SRD1/6P |
| R677 | 0113641 | CF 12KΩ ±5% SRD1/6P |
| R701 | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R702 | 0113605 | CF 390Ω ±5% SRD1/6P |
| R741 | 0129579 | CF 560Ω ±5% SRD1/4P |
| R742 | 0129577 | CF 470Ω ±5% SRD1/4P |
| R743 | 0129579 | CF 560Ω ±5% SRD1/4P |
| R810 | 0129561 | CF 100Ω ±5% SRD1/4P |
| R811LR | 0113641 | CF 12KΩ ±5% SRD1/6P |
| R812LR | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R813LR | 0113633 | CF 5.6KΩ ±5% SRD1/6P |
| R814LR | 0113633 | CF 5.6KΩ ±5% SRD1/6P |
| R815LR | 0113633 | CF 5.6KΩ ±5% SRD1/6P |

| SYMBOL No. | PART No. | DESCRIPTION |
|---|---|---|
| R816LR | 0113677 | CF 390KΩ ±5% SRD1/6P |
| R817LR | 0113649 | CF 27KΩ ±5% SRD1/6P |
| R818LR | 0113615 | CF 1KΩ ±5% SRD1/6P |
| R819LR | 0113615 | CF 1KΩ ±5% SRD1/6P |
| R821LR | 0113641 | CF 12KΩ ±5% SRD1/6P |
| R822LR | 0113639 | CF 10KΩ ±5% SRD1/6P |
| R823LR | 0113635 | CF 6.8KΩ ±5% SRD1/6P |
| R824LR | 0113633 | CF 5.6KΩ ±5% SRD1/6P |
| R825LR | 0113637 | CF 8.2KΩ ±5% SRD1/6P |
| R831LR | 0113675 | CF 330KΩ ±5% SRD1/6P |
| R832LR | 0113619 | CF 1.5KΩ ±5% SRD1/6P |
| R833LR | 0113599 | CF 220Ω ±5% SRD1/6P |

## ICs & TRANSISTORS

| | | |
|---|---|---|
| IC101 | 2398201 | TA7358P |
| IC201 | 2389511 | TA7640AP |
| IC301 | 23010412 | TA7343AP |
| IC401 | 23011912 | TA7784P |
| IC402 | 23008312 | μPC4558C |
| IC501 | 2389521 | μPC1278H |
| IC531 | 2389521 | μPC1278H |
| IC701 | 23696122 | BA6137 |
| Q171 | 2319083 | HIT9011GH [for E, E(BS)] |
| Q201 | 2329453 | 2SC945PA |
| Q202 | 2329582 | 2SA933R(R) |
| Q301 | 2329582 | 2SA933R(R) |
| Q431LR | 2328652 | 2SC1740LNT(S) |
| Q432LR | 2329453 | 2SC945PA |
| Q441 | 2329453 | 2SC945PA |
| Q461 | 2317803 | 2SD1266(P) |
| Q481LR | 2328652 | 2SC1740LNT(S) |
| Q482LR | 2329316 | 2SC1741QR |
| Q531LR | 2329316 | 2SC1741QR |
| Q532 | 2329582 | 2SA933R(R) |
| Q661 | 2328652 | 2SC1740LNT(S) |
| Q662 | 2328652 | 2SC1740LNT(S) |
| Q663 | 2328652 | 2SC1740LNT(S) |
| Q664 | 2329582 | 2SA933R(R) |
| Q801LR | 2328652 | 2SC1740LNT(S) |

## DIODES

| | | |
|---|---|---|
| D101 | 2397421 | 1SS133T |
| D102 | 2397421 | 1SS133T |
| D103 | 23380312 | 1S2790 |
| D201 | 2397421 | 1SS133T |
| D351 | 2397421 | 1SS133T |
| D352 | 2397421 | 1SS133T |
| D353 | 2397421 | 1SS133T |
| D354 | 2397421 | 1SS133T |
| D355 | 2397421 | 1SS133T |
| D356 | 2397421 | 1SS133T |
| D357 | 2397421 | 1SS133T |
| D358 | 2397421 | 1SS133T |
| D359 | 2397421 | 1SS133T |
| D360 | 2397421 | 1SS133T |
| D361 | 2397421 | 1SS133T |
| D362 | 2397421 | 1SS133T |
| D363 | 2397421 | 1SS133T |
| D364 | 2397421 | 1SS133T |
| D462 | 2397421 | 1SS133T |

| SYMBOL No. | PART No. | DESCRIPTION |
|---|---|---|
| D463 | 2397421 | 1SS133T |
| D464 | 2397421 | 1SS133T |
| D501 | 2397421 | 1SS133T |
| D531 | 2397421 | 1SS133T |
| D601 | 2398062 | 1N4001 |
| D602 | 2398062 | 1N4001 |
| D603 | 2398062 | 1N4001 |
| D604 | 2398062 | 1N4001 |
| D605 | 2398062 | 1N4001 |
| | | [for W, W(UN)] |
| ZD461 | 23375272 | HZ9C1 |
| ZD741 | 23375872 | HZ5C1 |
| D381 | 2397611 | LN242RPH-LF |
| D701 | 23390312 | SLR-34UR5 |
| D702 | 23390312 | SLR-34UR5 |
| D703 | 23390312 | SLR-34UR5 |
| D704 | 23390312 | SLR-34UR5 |
| D705 | 23390312 | SLR-34UR5 |
| D731 | 23390312 | SLR-34UR5 |
| D732 | 23390312 | SLR-34UR5 |
| D733 | 23390312 | SLR-34UR5 |
| D734 | 23390312 | SLR-34UR5 |
| D735 | 23390312 | SLR-34UR5 |
| D741 | 23390312 | SLR-34UR5 |
| D742 | 23390342 | SLR-34MG5F |
| D743 | 23390342 | SLR-34MG5F |
| **VARIABLE RESISTORS** | | |
| R300 | 0189331 | 5kΩ-(B) (FM MPX ADJ.) |
| R661 | 0158924 | 5kΩ-(B) (TAPE SPEED ADJ.) |
| R801 | 0189284 | 100kΩ-(B) (G.E. CONTROL) |
| R802 | 0189284 | 100kΩ-(B) (G.E. CONTROL) |
| R803 | 0189284 | 100kΩ-(B) (G.E. CONTROL) |
| R804 | 0189284 | 100kΩ-(B) (G.E. CONTROL) |
| R805 | 0189284 | 100kΩ-(B) (G.E. CONTROL) |
| R851 | 0189131 | 10kΩ-(A) (VOLUME CONTROL) |
| **COILS & TRANSFORMERS** | | |
| L001 | 2227352 | Peaking coil |
| L101 | 2137683 | FM RF coil |
| L102 | 2135274 | FM RF coil |
| L151 | 2137662 | SW ANT coil |
| | | [for E, E(BS)] |
| | 2137821 | SW ANT coil |
| | | [except E, E(BS)] |
| L152 | 2757994 | Ferrite antenna |
| | | [for E, E(BS)] |
| | 2757982 | Ferrite antenna |
| | | [except E, E(BS)] |
| L154 | 2137671 | SW OSC coil |
| | | [for E, E(BS)] |
| | 2137672 | SW OSC coil |
| | | [except E, E(BS)] |
| L155 | 2137631 | MW OSC coil |
| | | [for E, E(BS)] |
| | 2137633 | SW OSC coil |
| | | [except E, E(BS)] |
| L156 | 2137642 | LW OSC coil |
| | | [for E, E(BS)] |
| | 2137631 | MW OSC coil |
| | | [except E, E(BS)] |

| SYMBOL No. | PART No. | DESCRIPTION |
|---|---|---|
| L171 | 2137684 | Choke coil |
| L431LR | 2227991 | Choke coil |
| L661 | 2227352 | Choke coil |
| T101 | 2154962 | FM IF transformer |
| T201 | 2154952 | AM IF transformer |
| T202 | 2154964 | FM IF transformer |
| T203 | 2154951 | AM IF transformer |
| T441 | 2137651 | REC OSC transformer |
| ⚠T601 | 2267481 | Power transformer |
| | | [for E] |
| ⚠ | 2267482 | Power transformer |
| | | [for E(BS), AU] |
| ⚠ | 2267483 | Power transformer |
| | | [for H, HC] |
| ⚠ | 2267484 | Power transformer |
| | | [for W, W(UN)] |
| **MISCELLANEOUS** | | |
| CP101 | 2137191 | FM band pass filter |
| CT151 | 0283130 | Capacitor semi variable |
| | | [for E, E(BS)] |
| | 0283557 | Trimmer |
| | | [except E, E(BS)] |
| CT154 | 0283557 | Trimmer |
| | | [for E, E(BS)] |
| | 0283130 | Capacitor semi variable |
| | | [except E, E(BS)] |
| CT156 | 0282148 | Capacitor semi variable |
| | | [for E, E(BS)] |
| CV101 | 0282441 | Capacitor variable |
| ⚠F601 | 2727727 | Fuse T250mA 250V |
| | | [for W, W(UN)] |
| ⚠ | 2728034 | Fuse 400mA 250V |
| | | [for H, HC] |
| ⚠ | 2727728 | Fuse T160mA 250V |
| | | [for E, E(BS), AU] |
| ⚠F602 | 2727964 | Fuse 2.5A 125V |
| | | [for H, HC] |
| ⚠ | 2728076 | Fuse T2A |
| | | [except H, HC] |
| ⚠F604 | 2728034 | Fuse 400mA 250V |
| | | [for H, HC] |
| ⚠ | 2727721 | Fuse T400mA 250V |
| | | [except H, HC] |
| P602 | 2689463 | 2P terminal |
| MF201 | 2135321 | Ceramic filter |
| S101 | 2628531 | Lever switch (BAND SELECT) |
| S301 | 2629369 | Lever switch |
| | | (FM MODE/DUBBING SPEED SELECT) |
| S401 | 2628531 | Lever switch |
| | | (FUNCTION SELECT) |
| S402 | 2628523 | Slide switch |
| | | (REC/PLAY SELECT) |
| S403 | 2629369 | Lever switch (TAPE SELECT) |
| S441 | 2629261 | Slide switch (RIF) |
| S551 | 2600240 | Push switch (SURROUND/3D) |
| ⚠S601 | 2628671 | Slide switch (AC/DC SELECT) |
| ⚠S602 | 2628294 | Rotary switch (VOLTAGE SELECT) |
| | | [for W, W(UN)] |
| ⚠S651 | 2639869 | AC switch (OPERATE) |
| | 4567410 | 3φ x 4 DT screw (IC501, 531) |
| | 3809041 | LED holder |

| SYMBOL No. | PART No. | DESCRIPTION |
|---|---|---|
| | 3950522 | LED holder |
| J401 | 2678201 | 2P Pin jack |
| J571 | 2678781 | Stereo jack |
| J601 | 2678881 | DC jack |
| | | [for W, W(UN)] |

| SYMBOL No. | PART No. | DESCRIPTION |
|---|---|---|
| | | CABINET |
| 1 | 3808871 | Button (P) |
| 2 | 3808881 | Button (SD) |
| 3 | 3808882 | Button (SD) |
| 4 | 3808891 | SW knob |
| 5 | 3808901 | VOL. knob |
| 6 | 3808911 | REV piece |
| 7 | 4577816 | BT screw (3 ϕ x 20) |
| 8 | 3691425 | 3 ϕ x 25 BT screw |
| 9 | 4005891 | Front case assy |
| 11 | 4578972 | 3 ϕ x 10 BT screw |
| 12 | 8699410 | 3 ϕ x 10 BT screw |
| 13 | 2404121 | Speaker 16 |
| 14 | 2404111 | Speaker 12 |
| 15 | 4005911 | Top panel assy [for E, E(BS)] |
| | 4005912 | Top panel assy [for W, W(UN), AU] |
| | 4005913 | Top panel assy [for H, HC] |
| 16 | 4005881 | Cassette lid assy |
| 17 | 4005882 | Cassette lid assy [for E, E(BS)] |
| | 4005883 | Cassette lid assy [except E, E(BS)] |
| 18 | 3934271 | 8 roller |
| 19 | 4577661 | Roller pin |
| 20 | 4005901 | TUN holder assy |
| 21 | 3808971 | Tuning shaft |
| 22 | 3295294 | Tuning knob |
| 23 | 3340312 | Ring spring |
| 24 | 3977801 | Pointer |
| 25 | 3348702 | Pulley |
| 26 | 3340321 | Spring M |
| 27 | 3907261 | Damper |
| 28 | 3368932 | EJ spring |
| 29 | 2757901 | ROD. antenna |
| 30 | 4469401 | R antenna bracket |
| 31 | 4567433 | 3 ϕ x 10 DT bind screw |
| 32 | 4005921 | Rear case assy [for E] |
| | 4005922 | Rear case assy [for E(BS)] |
| | 4005923 | Rear case assy [for W] |
| | 4005924 | Rear case assy [for W(UN)] |
| | 4005925 | Rear case assy [for AU] |
| | 4005926 | Rear case assy [for H] |
| | 4005927 | Rear case assy [for HC] |
| 33 | 3369849 | Spring A |
| 34 | 4436666 | Terminal |
| 35 | 3369781 | Battery spring |
| 36 | 3973524 | Battery lid assy |
| 37 | 4476681 | REC lever |
| 38 | 4476691 | REC lever |
| 39 | 3808981 | Handle |
| 40 | 3809011 | SW arm |

| SYMBOL No. | PART No. | DESCRIPTION |
|---|---|---|
| 41 | 4578976 | 3 ϕ x 20 BT screw |
| 42 | 4577832 | 3 ϕ x 10 BT screw |
| 43 | 2737381 | Microphone |
| 44 | 2589243 | TN-21W mecha [for E, E(BS)] |
| | 2589252 | TN-521Z mecha [except E, E(BS)] |
| 47 | 48195382 | Button lever shaft |
| 48 | 48190722 | 2 ϕ x 7 screw |
| 49 | 48196182 | 2 ϕ x 9 screw [for E, E(BS)] |
| 52 | 3809021 | Cassette button |
| 53 | 3809031 | Cassette button (PL) |
| ⚠54 | 2702945 | Power supply cord [for HC] |
| ⚠ | 2706241 | Power supply cord [for H] |
| ⚠ | 2706251 | Power supply cord [for AU] |
| ⚠ | 2706264 | Power supply cord [for W, W(UN)] |
| ⚠ | 2707709 | Power supply cord [for E] |
| ⚠ | 2717902 | Power supply cord [for E(BS)] |
| 55 | 3808991 | Handle arm |
| 56 | 3809001 | Handle piece |
| | | for ACCESSORIES |
| ⚠ | 26679222 | Siemense plug [for W, W(UN)] |

| SYMBOL No. | PART No. | DESCRIPTION |
|---|---|---|
| | | CASSETTE CHASSIS [for E, E(BS)] |
| 1 | 48189922 | Switch plate |
| 2 | 4823651 | REC button lever |
| 3 | 4839371 | PAUSE button actuator assy |
| 4 | 4823661 | PLAY brtton lever |
| 5 | 4823671 | RWD button lever |
| 6 | 4823681 | FF button lever |
| 7 | 4823691 | STOP button lever |
| 8 | 4823701 | PAUSE button lever |
| 9 | 48189902 | RWD lever |
| 10 | 48191322 | PAUSE lever spring |
| 11 | 48191332 | PAUSE stopper |
| 12 | 48202142 | Button lever spring |
| 13 | 4833451 | PAUSE lever |
| 14 | 48202152 | Sub chassis |
| 15 | 48190072 | Button lever spring |
| 16 | 48191002 | Button lever spring |
| 17 | 4833452 | Record plate |
| 18 | 48190082 | Actuator spring |
| 19 | 48190092 | Auto lever |
| 20 | 48190002 | Auto lever spring |
| 21 | 48202172 | PLAY button lever spring |
| 22 | 48261012 | Leaf switch |
| 23 | 48202182 | Switch actuator spring |
| 24 | 48202192 | Head panel |
| 25 | 48190142 | Head base |
| 26 | 4832412 | Sensing plate assy |
| 27 | 48202212 | Head panel arm spring |
| 28 | 48190182 | MG arm |
| 29 | 48190062 | PR stopper |
| 30 | 48190172 | Spring |
| 31 | 48325222 | Screw |
| 32 | 48202232 | Pressure roller arm spring |
| 33 | 48190452 | Screw |
| 34 | 48202252 | RF pulley arm spring |
| 35 | 48202262 | RF arm collar screw |
| 36 | 4850591 | RF pulley arm assy |
| 37 | 48202272 | Belt |
| 38 | 4839379 | FF gear |
| 39 | 4850592 | Flywheel assy |
| 40 | 48190202 | TG plate spring |
| 41 | 4839378 | Take up roller gear |
| 42 | 4842431 | Supply reel assy |
| 43 | 4839381 | Take up reel assy |
| 44 | 4832421 | Record safety lever |
| 45 | 4839382 | Back tension spring |
| 46 | 4839379 | Back tension spring |
| 47 | 4819039 | Motor rubber |
| 48 | 48195332 | Motor collar screw |
| 49 | 48190432 | Eject slide lever |
| 50 | 48190442 | Eject slide lever spring |
| 51 | 4833457 | Belt |
| 54 | 4850598 | Motor assy |
| 55 | 2555671 | Record playback head |
| 56 | 4848051 | Erase head |
| 57 | 48190632 | Tapping screw (2 ϕ x 3) |
| 58 | 48190682 | Tapping screw (2 ϕ x 4) |
| 59 | 48196072 | Bind tapping screw (2 ϕ x 5) |
| 60 | 48196112 | Screw (2 ϕ x 6) |

| SYMBOL No. | PART No. | DESCRIPTION |
|---|---|---|
| 61 | 48190602 | Screw (2 ϕ x 7) |
| 62 | 48196002 | Azimuth screw |
| 63 | 48191862 | Screw (2 ϕ x 3) |
| 64 | 48191912 | Tapping screw (2 ϕ x 6) |
| 65 | 4839375 | Flywheel assy |
| 66 | 4850093 | T gear plate assy |
| 67 | 48190782 | Washer (1.55 ϕ x 3.8 x 0.5) |
| 68 | 4832432 | Washer (2.05 ϕ x 4 x 0.5) |
| 69 | 4848953 | Washer (1.2 ϕ x 3.7 x 0.4) |
| 71 | 48192322 | Button lever shaft |
| 72 | 48190722 | Screw (2 ϕ x 7) |
| 73 | 4839372 | Pinch roller arm assy |
| 74 | 4831610 | Metal guide |
| 75 | 4833463 | Lever |
| 76 | 4833464 | Lever |
| 77 | 4833465 | Special screw |
| 78 | 4833467 | Spring |
| 79 | 4850596 | Leaf switch |
| 80 | 4833460 | Collar (B) |
| 81 | 4833472 | Tapping screw (2 ϕ x 6) |
| 82 | 4819036 | Pack spring |
| 83 | 4850594 | Camera screw (1.7 ϕ x 3) |
| 84 | 48191952 | Tapping screw (2 ϕ x 5) |
| 85 | 2789577 | Counter |
| 86 | 4853736 | C tight screw (2 ϕ x 5) |
| 87 | 4856341 | Leaf switch |

## CASSETTE CHASSIS [except E, E(BS)]

| | | |
|---|---|---|
| 1 | 48191312 | PAUSE lever |
| 2 | 48191322 | PAUSE lever spring |
| 3 | 4842395 | Pack spring plate |
| 4 | 4853652 | Auto lever (F) |
| 5 | 4853653 | Auto lever spring (F) |
| 6 | 4853654 | Spring stopper |
| 7 | 4853655 | Auto lever (R) |
| 8 | 4853656 | Auto lever spring (R) |
| 9 | 4853657 | Eject slide lever |
| 10 | 4853658 | Eject slide lever spring |
| 11 | 4833465 | Special screw |
| 12 | 4853650 | Turn over arm |
| 13 | 4853661 | Turn over spring |
| 14 | 4853662 | Button base ass'y |
| 15 | 4853663 | T gear arm (F) assy |
| 16 | 4853664 | T gear arm (F) spring |
| 17 | 4853665 | T cam gear (F) |
| 18 | 4853666 | T gear arm (R) assy |
| 19 | 4853667 | T gear arm (R) spring |
| 20 | 4853668 | T cam gear (R) |
| 21 | 4853669 | Slide plate |
| 23 | 4853671 | Lock release spring |
| 25 | 4853673 | Mode button lever (S) |
| 26 | 4853674 | Button lever spring |
| 27 | 4853675 | PLAY button lever |
| 28 | 4853676 | FF button lever R (S) |
| 29 | 4853677 | FF button lever spring |
| 30 | 4853678 | FF button lever F (S) |
| 31 | 4853679 | STOP button lever (S) |
| 32 | 4853670 | Program button lever (S) |
| 33 | 4853681 | Pull arm spring |
| 34 | 4853682 | STOP button lever spring |

| SYMBOL No. | PART No. | DESCRIPTION |
|---|---|---|
| 35 | 4853683 | Relay plate |
| 36 | 4853684 | FF SW Plate |
| 37 | 4853685 | R.C. spring |
| 38 | 4853686 | Auto control arm (F) |
| 39 | 4853687 | Control collar |
| 40 | 4853688 | Auto control arm (R) |
| 41 | 4853689 | Head panel |
| 43 | 4853691 | R.C. plate spring |
| 44 | 4853692 | H.P. collar |
| 45 | 4853693 | Tape guide |
| 46 | 4853694 | Head spring plate |
| 47 | 2557632 | P. head |
| 48 | 4842401 | Slide switch |
| 49 | 4853696 | Switch bracket |
| 50 | 4853697 | Pinch roller spring (F) |
| 51 | 4853698 | Pinch roller spring (R) |
| 52 | 4853699 | Pinch roller (F) assy |
| 53 | 4853690 | Pinch roller (R) assy |
| 55 | 4853702 | Reel assy |
| 56 | 4853703 | Leaf switch |
| 57 | 48191952 | Tapping screw (2 ϕ x 5) |
| 58 | 4853704 | FF gear arm (F) assy |
| 59 | 4853705 | FF gear |
| 60 | 4853706 | FF gear arm (R) assy |
| 61 | 4853707 | FF gear arm collar |
| 62 | 4853708 | FF gear arm spring (F) |
| 63 | 4853709 | Flywheel assy |
| 64 | 4853700 | Main belt |
| 65 | 4853712 | P. kick lever |
| 66 | 4833463 | Lever |
| 67 | 4833466 | Special screw |
| 68 | 4842404 | Motor rubber |
| 69 | 48195332 | Motor collar screw |
| 70 | 4853713 | Anti vibration felt |
| 71 | 4856672 | Motor pulley assy |
| 72 | 4853715 | P. kick lever spring |
| 73 | 4853716 | Lock actuator spring |
| 74 | 4853717 | SW actuator spring |
| 75 | 4853718 | Main belt |
| 76 | 4853719 | C tapping screw (2 ϕ x 3) |
| 77 | 48191912 | Tapping screw (2 ϕ x 6) |
| 78 | 4842443 | Washer (2.1 ϕ x 5 x 0.5) |
| 79 | 4853710 | Screw (2 ϕ x 6) |
| 80 | 4853721 | Tapping screw (1.7 ϕ x 4) |
| 81 | 4853722 | Screw (2 ϕ x 4.5) |
| 82 | 4842414 | Washer (2 ϕ x 3.5 x 0.3) |
| 83 | 4842430 | Washer (2.1 ϕ x 3 x 0.3) |
| 84 | 4853723 | Washer (1.45 ϕ x 4 x 0.5) |
| 85 | 48190682 | Tapping screw (2 ϕ x 4) |
| 86 | 4842412 | Tapping screw (1.7 ϕ x 2.5) |
| 87 | 4842444 | Washer (1.2 ϕ x 3 x 0.25) |
| 88 | 4853724 | Tapping screw (1.7 ϕ x 3) |
| 89 | 48190772 | Washer (1.2 ϕ x 3 x 0.4) |
| 90 | 4853725 | Washer (3 ϕ x 8.5 x 0.13) |
| 91 | 4853726 | Tapping screw (1.7 ϕ x 8) |
| 92 | 4853727 | Switch actuator |
| 93 | 4839371 | Push button actuator assy |
| 94 | 4823651 | REC button lever |
| 95 | 4823661 | PLAY button lever |
| 96 | 4823671 | RWD button lever |
| 97 | 4823681 | FF button lever |
| 98 | 4823691 | STOP button lever |

| SYMBOL No. | PART No. | DESCRIPTION |
|---|---|---|
| 99 | 4823701 | PAUSE button lever |
| 100 | 48189902 | RWD lever |
| 101 | 4833451 | PAUSE lever |
| 102 | 48191322 | PAUSE lever spring |
| 103 | 48191332 | PAUSE stopper |
| 104 | 48191002 | Button lever spring |
| 105 | 48190072 | Button lever spring |
| 106 | 48202172 | PLAY button lever spring |
| 107 | 4842422 | Record spring board |
| 108 | 48190082 | Actuator spring |
| 109 | 48190092 | Auto lever |
| 110 | 48190002 | Auto lever spring |
| 111 | 48202142 | Button lever spring |
| 112 | 48191082 | Leaf switch |
| 113 | 48202192 | Head panel |
| 114 | 4842423 | Sensing plate assy |
| 115 | 4832522 | Screw |
| 116 | 48202212 | Head panel spring |
| 117 | 48190142 | Head base |
| 118 | 48190062 | PR stopper |
| 119 | 48190452 | Screw |
| 120 | 48190172 | Spring |
| 121 | 4839372 | Pinch roller arm assy |
| 122 | 4842424 | Pinch roller spring |
| 123 | 4831610 | Metal guide |
| 124 | 4853728 | RF pulley armassy |
| 125 | 48202252 | RF pulley armspring |
| 126 | 48202262 | RF arm collar screw |
| 127 | 48202272 | Belt |
| 128 | 4850092 | Flywheel |
| 129 | 4842429 | T gear plate assy |
| 130 | 4839378 | Take up rollergear |
| 131 | 48190202 | TG plate spring |
| 132 | 4839379 | FF gear |
| 133 | 4842420 | Back tension spring |
| 134 | 4842431 | Supply reel assy |
| 135 | 4853729 | Take up reel assy |
| 136 | 4832421 | Record safety lever |
| 137 | 4839382 | Back tension spring |
| 138 | 48190432 | Eject slide lever |
| 139 | 48190442 | Eject slide lever spring |
| 140 | 4842433 | Bracket |
| 141 | 2555671 | Record playback head |
| 142 | 4848051 | Erase head |
| 143 | 48190182 | MG arm |
| 144 | 48202182 | Switch actuator spring |
| 145 | 4842434 | Camera tapping screw (2 ϕ x 3.5) |
| 146 | 48190782 | Washer |
| 147 | 48191862 | Screw (2 ϕ x 3) |
| 148 | 48190682 | Tapping screw (2 ϕ x 4) |
| 149 | 48196072 | Bind tapping screw (2 ϕ x 5) |
| 150 | 48196112 | Screw (2 ϕ x 6) |
| 151 | 48190602 | Screw (2 ϕ x 7) |
| 152 | 48196002 | Azimuth screw |
| 153 | 4832431 | Washer (2.05 ϕ x 4 x 0.5) |
| 155 | 4853732 | Button lever spring (P) |
| 156 | 4853733 | RC arm |
| 158 | 4853734 | Control arm |
| 159 | 4856341 | Leaf switch |
| 160 | 4853736 | C tight screw (2 ϕ x 5) |
| 161 | 4842428 | Reel base assy |

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